School of Management Studies

MMPC-004
ACCOUNTING FOR MANAGERS

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Acknowledgement: Parts of this course is adapted from the earlier MS-04: Accounting for Managers course and the persons marked with (*) were the original contributors and the profiles are as it was on the date of initial print.

PRINT PRODUCTION

Mr.Tilak Raj
Assistant Registrar
MPDD, IGNOU, New Delhi

September, 2021

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ISBN:

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Printed and published on behalf of the Indira Gandhi National Open University, New Delhi, by the Registrar, MPDD, IGNOU.

Laser typeset by Tessa Media & Computers, C-206, A.F.E-II, Jamia Nagar, New Delhi-110025

COURSE INTRODUCTION

To understand the dynamics of business and analyse its operations one needs to be aware of various domains of knowledge and skill sets. When executives move to managerial roles they should be equipped with multidisciplinary skill sets and accountancy is one of them. This course is designed in a way that even learners with no prior knowledge of accountancy will be able to prepare and analyse various accounting statements after completing this course.

The first part of this course "Accounting an Overview" consists of five units.

Unit 1 discusses the scope of accounting along with the conceptual framework of accounting.

Unit 2 explains the basic accounting process along with the rules for making entry into primary books of accounts viz. Journal and Ledger. Any discrepancy in the accounting statements can be traced back to these primary books, therefore it is of utmost importance for you to understand this process of making entries into Journal and posting them into ledger

Unit 3 deals with the preparation of financial statements viz. Trading and Profit& Loss account and Balance Sheet. Preparation of financial statement is the culmination of accounting process and these financial statements give an fair idea about the profitability and cost structure of the business.

Unit 4&5 deals with preparation of final accounts of companies and cash flow statement. Companies are more complex entities as compared to proprietorship and partnership firms and in addition they are also governed by the companies act 2013. Keeping in view the requirements of the Companies Act, 2013, we discuss the preparation of final account of companies and cash flow statement. Cash flow statement is a tool through which we can analyse the source of cash and application of cash for the business activities. Profit/loss calculated from profit and loss account does not give an idea about the liquidity position of the firm; therefore cash flow statement is prepared.

The second and third part of this course deals with some aspects of cost management. Cost management has gained significance in recent years due to emergence of global value chains and dismantling of trade and non trade barriers.

Unit 6 deals with classification of costs. The various elements of cost are first explained followed by discussion on its various components which will help you to understand the application of these concepts to managerial decisions.

Unit 7 discusses two well known techniques of costing: Absorption Costing and Marginal Costing. Absorption costing takes into consideration both fixed and variable cost for determining the cost of the product whereas marginal cost only considers variable cost while charging fixed cost to the revenue of that particular period. These techniques provide inputs for managerial decisions like volume of production, procure r produce and many other.

In unit 8 we discuss about Activity Based Costing (ABC). In this system of costing the costs are first traced to the activity involved and then to the product. This method of costing provides a better way to trace the costs and subsequently control it.

The third part of this course discusses the application of cost accounting techniques.

Unit 9 deals with Cost Volume Profit (CVP) analysis, wherein we discuss the impact of various variables on profit.

Unit 10 deals with budgeting and budgetary control. Cost and time over run is a serious managerial challenge. To tackle this awell defined budget is required and to monitor progress and avoid cost and time overrun budgetary control techniques are used.

Unit 11 deals with variance analysis. Production planning is based on certain pre defined cost and performance standards .During the production process these pre defined standards may be violated. To measure the impact of deviation from pre defined standards we use the technique of variance analysis.

The fourth part of this course deals with financial statement analysis.

Unit 12 deals with understanding annual report. Annual report contains wealth of information about the company and is also indicative of the future plans of the company. We discuss the contents of annual report and how to interpret these contents.

Unit 13&14 deals with various techniques used to analyse the various aspects of business. The techniques discussed are comparative, common size and trend analysis along with ratio analysis.

The fifth part of this course discusses few of the recent trends emerging in accounting.

Unit 15 discusses human resource accounting. This concept of accounting envisages that the expenses on development of human resources shall be treated as capital expense instead of revenue expense and shown in the balance sheet as an asset. This concept of accounting is yet to gain acceptance so as to appear in the balance sheet, but many companies have started valuing their human resources and same is shown in separate statement in annual report.

Unit 16 discusses Forensic Accounting. Recent decades have witnessed variety of financial scams and frauds. Forensic accounting is a technique to investigate frauds and collect evidence which are sustainable in court of law.

On completion of this course you would be able to prepare the financial statements and will have the ability to comprehend complex financial transactions along with the analysis of annual reports. You would also be aware of the some of the recent trends in accounting.

BLOCK 1
ACCOUNTING: AN OVERVIEW

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UNIT 1 INTRODUCTION TO ACCOUNTING

Objective

After studying this unit, you should be able to appreciate:

- Nature and role of accounting;
- Meaning and objectives of accounting
- Different branches of accounting
- Users of Accounting information
- The basic accounting concepts, principles and conventions

Structure

1.1 Introduction
1.2 Scope and Objectives of Accounting
1.3 Definition of Accounting
  1.3.1 Steps in Accounting Cycle
  1.3.2 Book Keeping vsAccounting
  1.3.3 Systems of Accounting
  1.3.4 Applications of Accounting
  1.3.5 Qualitative Characteristics of Accounting
1.4 Accounting as an Information System of Accounting
  1.4.1 Nature of Accounting Function
1.5 Emerging role of Accounting
1.6 Accounting Personnel
1.7 Accounting Framework
  1.7.1 Accounting Concepts
1.8 Summary
1.9 Answers to Check Your Progress

1.1 INTRODUCTION

Accounting is often called the language of business. The basic function of any language is to serve as a means of communication. In this context, the purpose of ac-counting is to communicate or report the results of business operations and its various aspects. Accounting has been defined in various ways. According to one commonly accepted definition, "Accounting is the art of recording, classifying and summarising in a significant manner and in terms of money, transactions and events which are; in part at least, of financial character and interpreting the results thereof'. Another definition which is less restrictive interprets accounting as "The process of identifying, measuring and communicating economic information to permit informed judgements and decisions by the users of information".

1.2 OBJECTIVESAND SCOPE OF ACCOUNTING

The main objectives of accounting are:

To maintain a systematic record of business transactions

- Accounting is prepared to maintain a systematic record of all the financial transactions or monetary transaction in a book of accounts
- For this purpose, all the transactions are recorded in chronological order in Journal and then posted to principal book i.e. Ledger, Trial balance.

To ascertain profit and loss

- Every businessman is curious to know the net results of business operations periodically.
- In order to find out whether the business has earned profits or incurred losses, we prepare a "Profit & Loss Account".

To determine the financial position

- Another important objective is to determine the financial position of the business to check the value of assets and liabilities.
- For this purpose, we prepare a "Balance Sheet".

To provide information to various users

- The most important objectives of accounting. Is to provide information to the various interested parties or stakeholders
- The information provided by accounts helps them in making good financial decisions.

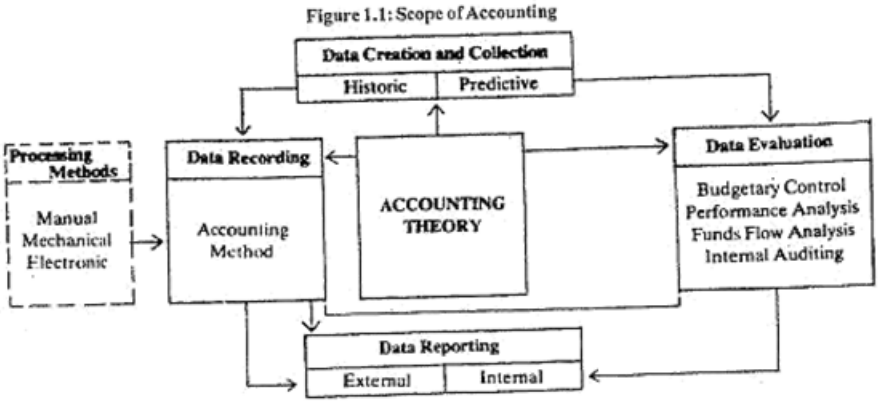
To assist the management

- By analysing financial data and providing interpretations in the form of reports, accounting assists management in handling business operations effectively.

SCOPE OF ACCOUNTING

The scope of accounting can be presented in a diagrammatic form as shown in Figure 1.1.

Figure 1.1: Scope of Accounting



Source: Adapted from R.J. Bull, Accounting in Business, Butterworths, London, 1969,p.2.

Data creation and collection is the area which provides raw material for accounting. The data collected is `historic' in the sense that it refers to events which have already taken place. Earlier, accounting was largely concerned with what had happened, rather than making any attempt to predict and prepare for future.

After the historic data has been collected, it is **recorded** in accordance with generally accepted accounting theory. A large number of transactions or events have to be entered in the books of original entry (journals) and ledgers in accordance with the classification scheme already decided upon. The recording and processing of information usually accounts for a substantial part of total accounting work. This type of activity of accounting may be called **recordative.** The processing method employed for recording may be manual, mechanical or electronic. Computers are also used widely in modern business for doing this job.

Data evaluation is regarded as the most important activity in accounting these days. Evaluation of data includes controlling the activities of business with the help of budgets and standard costs (budgetary control), evaluating the performance of business, analysing the flow of funds, and analysing the accounting information for decision-making purposes by choosing among alternative courses of action.

The **analytical and interpretative** work of counting may be for internal or external uses and may range from snap answers to elaborate reports produced by extensive research. Capital project analysis, financial forecasts, budgetary projections and analysis for reorganisation, takeover or merger often lead to research-based reports.

Data evaluation has another dimension and this can be known as the **auditive** work which focuses on verification of transactions as entered in the books of account and authentication of financial statements. This work is done by public professional accountants. However, it has become common these days for even medium-sized organisations to engage internal auditors to keep a continuous watch over financial flows and review the operation of the financial system.

Data reporting consists of two parts-external and internal. External reporting refers to the communication of financial information (viz., earnings, financial and funds position) about the business to outside parties, e.g., shareholders, government agencies and regulatory bodies of the government. Internal reporting is concerned with the communication of results of financial analysis and evaluation to management for decision-making purposes.

You will note that **accounting theory** has been shown in the centre of the diagram.

The central purpose of accounting is to make possible the periodic **matching** of costs (efforts) and revenues (accomplishments). This concept is the nucleus of accounting theory. However, accounting is moving away from its traditional procedure-based record -keeping function to the adoption of a role which emphasises its social importance.

1.3 DEFINITION OF ACCOUNTING

Accounting can be defined as a process of reporting, recording, interpreting and summarising economic data. The introduction of accounting helps the decision-makers of a company to make effective choices, by providing information on the financial status of the business

Accounting is a system which identify the transaction, record those transaction of a business organisation in a way that can be compared with the other business as well as within the business with the past performance.. Accounting is a part of our daily life a person most common use of accounting is to check accounts, Tax forms, Pay roll any credit taken all these experience focus on record keeping part of accounting. Now days due to advancement of technology the recording part is done with the help of technology still the analysis is done by human minds thus understanding the various concept of accounting is important

The American Institute of Certified Public Accountants (AICPA) had defined accounting as the "art of recording, classifying, and summarising in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof".

As per Robert N. Anthony – "Accounting system is a means of collecting, summarizing, analyzing and reporting, in monetary terms, information about the business".

To understand accounting efficiently, it is important to understand the following aspects of accounting.

Economic Events- Economic events are those which are a result of a consequence of a monetary transaction which company has to undergo during its lifetime. Such as purchasing new machinery, transportation, machine installation on-site, etc.

Identification, Measurement, Recording, and Communication- The purpose of accounting system should be elaborated in such a way that the right data is identified, measured, recorded and communicated to the right individual and at the right time.

Organization-It refers to the size of business and the types of activities.

Assets –Assets are those resources owned by organization which helps the company to earn profit. The economic value of an item which is possessed by the enterprise is referred to as Assets. e.g. Plant and Machinery, Furniture and Fittings, Land and Buildings, Books, Computers, Motor Vehicles, etc Assets can Tangible which can be seen or touched and Intangible for example Goodwill, Patent etc,

Liabilities - The economic value of an obligation or debt that is payable by the enterprise to other establishment or individual is referred to as liability. In other words, liabilities are the obligations or responsibility that are arise out of previous transactions, which is payable by the enterprise, through the assets possessed by the enterprise. Liabilities can be classified as Fixed and

current. For example outstanding expenses , Debentures , Loans from banks and financial institutions

Owner's Equity - Owner's equity is one of the 3 vital segments of a sole proprietorship's balance sheet and one of the main aspects of the accounting equation:

Assets = Liabilities + Owner's Equity.

It represents the owner's investment (Capital) in the trade minus the owner's withdrawal from the trade (Drawings) + the net income since the business concern commenced.

1.3.1 Steps in Accounting Cycle

The following attributes or characteristics can be drawn from the definition of Accounting:

Identifying financial transactions and events

- Only those transactions and events which are of financial nature.
- Therefore, first of all, such transactions and events are identified.

Measuring the transactions

- The transactions and events are measured in terms of money which is considered as a common unit.

Recording of transactions

- Accounting involves recording the financial transactions inappropriate book of accounts such as Journal or Subsidiary Books.

Classifying the transactions

- Transactions recorded in the books of original entry – Journal or Subsidiary books are classified and grouped according to nature and posted in separate accounts known as 'Ledger Accounts'.

Summarising the transactions

- It involves presenting the classified data in a manner and in the form of statements, which are understandable by the users.
- It includes Trial balance, Trading Account, Profit and Loss Account and Balance Sheet.

Analysing and interpreting financial data

- Results of the business are analyzed and interpreted so that users of financial statements can make a meaningful and sound judgment.

Communicating the financial data or reports to the users

- Communicating the financial data to the users on time is the final step of Accounting so that they can make appropriate decisions. It not only

record classifies and summaries the business data but also analyse and interprets the results for the future decisions.

1.3.2 Bookkeeping Vs Accounting

Bookkeeping It is a component of accounting that involves the process of identifying the financial transactions, measuring, recording and classifying those transactions that have occurred in the course of business.

Accounting Accounting begins where Book Keeping ends. It is a wider concept and includes summarizing, interpreting and communicating the financial data to the users of financial statements.

Accountancy Accountancy refers to systematic knowledge of the accounting principles and the techniques.

Parameters	Bookkeeping	Accounting
Scope	It involves identifying, measuring, recording & classifying financial transactions in the ledger accounts.	In addition to bookkeeping, Accounting also involves summarizing, interpreting and communicating the financial data to the users of financial statements.
Objective	The major objective is to maintain systematic records of financial transactions.	Its objective is to determine the profitability and financial position of the business.
Stage	It is a primary stage of accounting	Accounting starts where book keeping ends.
Nature of job	It is routine and repetitive in nature.	It is analytical in nature.
Level of skills	Bookkeeping does not require special skills and is performed by Junior Staff.	It requires specialized skill and is performed by senior staff.

1.3.3 Systems of Accounting

There are following two systems of recording transactions in the books of accounts:

I. Double Entry System

Double-entry system

- The double entry system is based on the Dual Aspect Principle.
- Every transaction has two aspects, 'a Debit' and 'a credit' of an equal amount.
- This system of accounting recognises and records both aspects of the transaction.
- Minimum two accounts are involved.
- The accounting equation should not be violated.

Single entry system

- Under this system, both aspects are not recorded for all the transactions.
- Either only one aspect is recorded or both the aspects are not recorded for all the transactions.

Advantages of the Double-entry System of Accounting

Following are the main merits of the double-entry system of accounting:

i. Scientific system

- As compared to the single-entry systems, this system is more scientific and is useful to achieve the objective of accounting.

ii. A complete record of the transaction

- Since both the aspects of transactions are considered, thus there is a complete recording of each and every transaction.
- Using these records one can compute profit or loss easily.

iii. Checks arithmetical accuracy of accounts

- Under this system, one can check the arithmetical accuracy of the records by preparing a Trial Balance.

iv. Determination of profit/loss and depiction of financial position

- Under this system one get to know about the profit earned or loss incurred by preparing 'Profit & Loss A/c' we get
- By preparing the 'Balance Sheet' the financial position of the business can be ascertained, i.e., position of assets and liabilities is depicted.

v. Helpful in decision making

- Under the double-entry system of accounting, administration and management are able to take decisions on the basis of factual information.

1.3.4 Applications of Accounting

The following are the main applications of accounting:

Provide information about financial performance

- Accounting provides factual information about the financial performance of an enterprise during a given time period.
- It provides information like, profit earned or loss incurred over a period of time (through profit and loss statement) and financial position (through balance sheet) at a particular point of time.

Provide assistance to management

- Accounting also assists the management in business planning, decision making and in exercising control by providing financial information in the form of reports.

Facilitates comparative study

- Accounting helps in making a comparison by keeping a systematic records and preparation of reports at regular intervals.

Helps in settlement of tax liability

- Systematic accounting records further help in settlement of various tax liabilities such as – Income Tax, GST, etc.

Helpful in raising loan

- On the basis of appraisal of the financial statement of the firm, banks and Financial Institutions grant a loan to the firm.

Helpful in decision making

- Accounting also provides useful information to the management for taking vital decisions.

Substitute of human memory:

- Since it is difficult for a human to remember all the transactions of the business, accounting serve as a substitute of human memory by recording all the transaction and keep all information handy as and one require.

Helps in the valuation of business:

- In case of the shut down and dissolution of business , accounting helps the businessman to determine the value of business otherwise it is not possible to determine value of business

A. Limitations

Following are the limitations of accounting:

Accounting is not precise: Accounting is often subjected to personal bias or judgment.

Accounting is done on historic values of assets: Accounting records assets at their historical cost less depreciation and does not reflect their current market value.

Ignore the effect of price level changes: Accounting statements are prepared at historical cost and thus ignores the changes in the value of money.

Ignore the qualitative information: Accounting ignores the qualitative aspects as it records only monetary transactions.

Affected by window dressing: Window dressing means manipulation in accounting, in order to present a more favourable position of the business than the actual position.

1.3.5 Qualitative Characteristics of Accounting Information

Qualitative characteristics are the attributes of accounting information, which enhance its understand ability and usefulness:

Reliability: Reliability means that the information must be free from material error and personal bias. Unless the information is reliable the accounting records cannot be prepared accurate.

Relevance: To be useful: accounting information must be relevant to the decision-making requirements of the users.

Understand ability: Information should be disclosed in financial statements in such a manner that these are easily understandable.

Comparability: Both intra-firm and inter-firm comparison must be possible over different time periods. That is the performance of company can be compared with its previous performance and with other companies also.

1.4 ACCOUNTING AS AN INFORMATION SYSTEM

While discussing the scope of accounting you must have observed that accounting involves a series of activities linked with each other, beginning with the collecting, recording, analysing and evaluating the data, and finally communicating information to its users. Information has no meaning unless it is linked with a certain purpose. Accounting as a social science can be viewed as an information system since it has all the features of a system. It has its inputs (raw data), processes (men and equipment), and outputs (reports and information). If we consider accounting as an information system, then we are in a position to make some important observations. First, the goal of the system is to provide information which meets the needs of its users. If we can correctly identify the needs of the users, we are then able to specify the nature and character of the outputs of the system. Secondly, it is the output requirements that .determine the type of data which would be selected as the inputs for processing into information output.

There are several groups of people who have a stake in a business organisation-managers, shareholders, creditors, employees, customers, etc. Additionally, the community at large has economic and social interest in the activities of such organisations. This interest is expressed at the national level by the concern of government in various aspects of the firms' activities, such

as their economic well-being, their contribution to welfare, their part in the growth of the national product, to mention only a few examples.

We shall now briefly discuss what the information needs of various users are.

Shareholders and Investors: Since shareholders and other investors have invested their wealth in a business enterprise, they are interested in knowing periodically about the profitability of the enterprise, the soundness of their investment and the growth prospects of the enterprise. Historically, business accounting was developed to supply information to those who had invested their funds in business enterprises.

Creditors: Creditors may be short-term or long -term lenders. Short-term creditors include suppliers of materials, goods or services. They are normally known as trade creditors. Long-term creditors are those who' have lent money for a long period, usually in the form of secured loans. The main concern of the creditors is focused on the credit worthiness of the firms and its ability to meet its financial obligations. They are therefore concerned with the liquidity of the firms, its profitability and financial soundness. In other words, it can also be stated that creditors are interested mainly in information which deals with solvency, liquidity and profitability so that they could assess the financial standing of the firms.

Employees: The view that business organisations exist to maximise the return to shareholders has been undergoing change as a result of social changes. A broader view is taken today of economic and social role of management. The importance of harmonious industrial relations between management and employees cannot be over-emphasised. That the employees have a stake in the outcomes of several managerial decisions is recognised. Greater emphasis on industrial democracy through employee participation in management decisions has important implications for the supply of information to employees. Matters like settlement of wages, bonus, and profit sharing rest on adequate disclosure of relevant facts.

Government: In a mixed economy it is considered to be the responsibility of the Government to direct the operation of the economic system in such a manner that it sub serves the common good. Controls and regulations on the operations of private sector enterprises are the hallmark of mixed economy. Several government agencies collect information about various aspects of the activities of business organisations. Much of this information is a direct output of the accounting system, for example, levels of outputs, profits, investments, costs, and taxes, etc. All this information is very important in evolving policies for managing the economy. The task of the Gov[e]rnment in managing the industrial economy of the country is facilitated if accounting information is presented, as far as possible, in a uniform manner. It is clear that if accounting information is distorted due to manipulations and window-dressing in the presentation of annual accounts, it will have ill-effects on the measures the government intends to take and the policies it wishes to adopt.

Management: Organisations may or may not exist for the sole purpose of profit. However, information needs of the managers of both kinds of organisations are almost the same, because the managerial process i.e.,

planning, organising and controlling is the same. All these functions have one thing in common and it is that they are all concerned with making decisions which have their own specific information requirements. The emphasis on efficient and effective management of organisations has considerably extended the demand for accounting information. The role of accounting as far as management is concerned was highlighted earlier when we discussed about management accounting.

Consumers and others: Consumers' organisations, media, welfare organisations and public at large are also interested in condensed accounting information in order to appraise the efficiency and social role of the enterprises in different sectors of the economy, that is, what levels of profits and outputs are being achieved, in what way the social responsibility is being discharged and in what manner the growth is being planned by the enterprises in-accordance with the national priorities etc.

The above discussion perhaps has indicated to you that the information needs of the various users may not necessarily be the same. Sometimes, they may even conflict and compete with each other. In any case, the objective of accounting information is to enable information users to make optimum decisions.

1.4.1 Nature of Accounting Function

Accounting is a **service function.** The chief accounting executive (by whatever name he is called) holds a staff position except within his own department where he exerts authority. This is in contradistinction to the roles played by production or marketing executives who hold line authority: The role of the accountant is advisory in character. He works through the authority of the chief executive. The accounts and or finance department(s) don’t exercise direct authority over line departments. In decentralised structure with a number of units and divisions, the accounting executive however exercises what is known as the functional authority over all the accounting staff deployed in different segments.

There are two facets to the role of the accountant. For the top managers he works as a watchdog and for middle and lower level managers he acts as `helper'. The watchdog role is usually performed through `score-keeping' task of accounting and reporting to all levels of management. The `helper' role is usually performed through the task of directing managers' attention to problems and assisting them in solving problems.

Mutual understanding and rapport between the accountant and the manager, in the tasks of attention-directing and problem-solving can be enhanced if accountant and his staff frequently interact with the line managers and guide them in matters concerned with preparation of budgets and control documents with which they might not be conversant. This will instil confidence among line managers regarding the reliability of reports.

1.5 EMERGING ROLE OF ACCOUNTING

The history of accounting indicates the evolutionary pattern which reflects changing socio-economic conditions and the enlarged purposes to which accounting is applied. In the present context four phases in the evolution of accounting can be distinguished.

Stewardship Accounting

In earlier times in history, wealthy people employed `stewards' to manage their property. These stewards rendered an account of their stewardship to their owners periodically. This notion lies at the root of financial reporting even today which essentially involves the orderly recording of business transactions, commonly known as 'book-keeping'. Indeed the accounting concepts and procedures, in use today for systematic recording of business transactions have their origin in the practices employed by merchants in Italy during the 15th century. The Italian method which specifically began to be known as `double entry book-keeping' was adopted by other European countries during the 19th century. Stewardship accounting, in a sense, is associated with the need of business owners to keep records of their transactions, the property and tools they owned debts they owed, and the debts others owed them.

Financial Accounting

Financial accounting dates from the development of large-scale business and the advent of Joint Stock Company (a form of business which enables the public to participate in providing capital in return for `shares' in the assets and the profits of the company). This form of business organisation permits a limit to the liability of their members to the nominal value of their shares. This means that the liability of a shareholder for the financial debts of the company is limited to the amount he had agreed to pay on the shares he bought. He is into liable to make any further contribution in the event of the company's failure or liquidation. As a matter of fact, the law governing the operations (or functioning) of a company in any country (for instance the Companies Act in India) gives a legal form to the doctrine of stewardship which requires that information be disclosed to the shareholders in the form of annual income statement and balance sheet.

Briefly speaking, the income statement is a statement of profit and loss made during the year of the report; and the balance sheet indicates the assets held by the firm and the monetary claims against the firm. The general unwillingness of the company directors to disclose more than the minimum information required by law and the growing public awareness have forced the governments in various countries of the• world to extend the disclosure (of information) requirements

The importance attached to financial accounting statements can be traced to the need of the society to mobilise the savings and channel them into profitable investments. Investors, whether they are large or small, must be provided with reliable and sufficient information in order to be able to make

efficient investment decisions. This is the most significant social purpose of financial accounting.

Cost Accounting

The industrial revolution in England presented a challenge to the development of accounting as a tool of industrial management. Costing techniques were developed as guides to management actions. The increasing awareness on the part of entrepreneurs and industrial managers for using scientific principles of management in the wake of scientific management movement led to the development of cost accounting. Cost accounting is concerned with the application of costing principles, methods and techniques for ascertaining the costs with a view to controlling them and assessing the profitability and efficiency of the enterprise.

Management Accounting

The advent of management accounting was the next logical step in the developmental process. The practice of using accounting information as a direct aid to management is a phenomenon of the 20th century, particularly the last 30-40 years. The genesis of modern management with its emphasis on detailed information for decision- making provide a tremendous impetus to the development of management accounting.

Management accounting is concerned with the preparation and presentation of ac-counting and controlling information in a form which assists management in the 'formulation of policies and in decision-making on various matters connected with routine or non-routine operations of business enterprise. It is through the techniques of management accounting that the managers are supplied with information which they need for achieving objectives for which they are accountable. Management accounting has thus shifted the focus of accounting from recording and analysing financial transactions to using information for decisions affecting the future. In this sense, management accounting has a vital role to play in extending the horizons of modern business. While the reports emanating from financial accounting are subject to the conceptual framework of accounting, internal reports-routine or non-routine are free from such constraints.

Social Responsibility Accounting

Social responsibility accounting is a new phase in the development of accounting and owes its birth to increasing social awareness which has been particularly noticeable over the last two decades or so. Social responsibility accounting widens the scope of accounting by considering the social effects of business decisions, in addition to the economic effects. Several social scientists, statesmen and social workers all over the world have been drawing the attention of their governments and the people in their countries to the dangers posed to environment and ecology by the unbridled industrial growth. The role of business in society is increasingly coming under greater scrutiny\ The management is being held responsible not only for efficient conduct of business as expressed in profitability, but also for what it contributes to social well being and progress. There is a growing feeling that

the concepts of growth and profit as measured in traditional balance sheets and income statements are too narrow to reflect the social responsibility aspects of a business.

Human Resource Accounting

Way back in 1964 the first attempt to include figures on human capital in the balance sheet was made by Hermansson which later came to be known as Human Resource Accounting. However there had been a great socio-economic shift in the 1990's with the emergence of "Knowledge economy", a distinctive shift towards recognition of human and intellectual capital in contrast to physical capital. Human Resource Accounting is a branch of accounting which seeks to report and emphasise the importance of human resources (knowledgeable, trained, loyal and committed employees) in a company's earning process and total assets. It is concerned with "the process of identifying and measuring data about human resources and communicating this information to interested parties". In simple words it involves accounting for investment in people and replacement costs as well as accounting for the economic values of people to an organisation. Generally the methods used for valuing and accounting of human resources are either based on costs or on economic value of human resources., However providing adequate and valid information on human assets (capital), which are outside the concept of ownership, in figures is very difficult. Nevertheless HRA is a managerial tool providing valuable information to the top management to take decisions regarding adequacy of human resources and thus encouraging managers to consider investment in manpower in a more positive way.

Inflation Accounting

Inflation Accounting is concerned with the adjustment in the value of assets (current and fixed) and of profit in the light of changes in the price level. In a way, it is concerned with the overcoming of limitations that arise in financial statements on account of the cost assumption (that is recording of the assets at their historical or original cost) and the assumption of stable monetary unit (these are discussed in detail in the next unit). It thus aims at correcting the distortions in the reported results caused by price level changes. Generally, rising prices during inflation have the distorting influence of overstating the profit. Various approaches have been suggested to deal with this problem.

1.6 ACCOUNTING PERSONNEL

There is hardly any organisation which does not have an accountant. His role is all pervasive and he is involved in a wide range of activities, particularly in a large and complex organisation. The exact duties of an accountant might differ in different organisations. However, a broad spectrum of responsibilities can be identified.

The accountants can be broadly divided into two categories, those who are in public practice and those who are in private employment. The accountants in public practice offer their services for conducting financial and or cost audit. As such, they are known as auditors. The auditor examines the books of

account and reports on the balance sheet and profit and loss account of the company as to whether they give a true and fair view of the state of affairs of the company and its profit respectively. The auditor in a company is appointed by the shareholders to whom he reports. Public accountants are generally members of professional bodies like the Institute of Chartered Accountants of India or the Institute of Cost and Works Accountants of India. In addition to conducting financial or cost audit (in accordance with the requirements of the Companies Act), as the case may be, they may also provide consultancy services for design Qing or improving accounting and management control systems.

Accountants in employment may be in various business or non-business organisations to perform a variety of accounting and management control functions. Accountants at higher levels generally belong to professional accounting bodies but those who are at

lower levels need not be so. Accounting chiefs in different organisations, depending upon their nature of work, are variously designated as finance officers or internal auditors or chiefs accounts officers, etc. The term `controller' as the head of the accounting and finance function is not very popular in India but of late it has been catching up. Several large organisations, both in the public and private sectors, have now controllers. Let us have an idea of who these people are and what they do.

Internal Auditor: Internal Auditor is an employee of the organisation in contrast to an external auditor who is paid a fee for his services. The internal auditor is responsible for performing monitoring activities and other services, including designing and operating the system of internal control, auditing the data reported to the directors of the company, and assisting external auditors. The head of the internal audit function and reports directly either to the chief executive or to the audit committee of the Board of Directors.

Internal audit includes continuous verification of entries appearing in the books of account with the original vouchers and proper accounting of assets. Further, it at-tempts to ensure that the policies and procedures regarding financial matters are being complied with. Internal auditing is also concerned with administering the system of **internal check** so that mistakes, innocent or intentional, are prevented from taking place.

We should distinguish an internal auditor from an external auditor. While an internal auditor devotes his entire time and energy to the needs of one company (i.e., his employer), an external auditor serves many clients. The primary function of the external auditor, as pointed out earlier, is to safeguard the interests of the shareholders (by whom he is appointed) by an independent and impartial appraisal of the financial transactions of the company so that he could report on the net profit earned by the company and its financial position. His role is that of an objective outsider, expressing expert opinions to the financial condition and operating results of the client's business.

A part from shareholders, other parties such as banks, lending institutions, government agencies, etc. reply on the fairness of such financial reports in

making certain decision about a given company. An auditor is bound by a set of professional regulations which include an examination on technical competence and adherence to a code of ethical conduct.

Controller : Controller- the other name for Chief Accountant- is usually the head of the whole area of accounting, including internal audit. He is overall in - charge of all the activities comprising financial accounting, cost accounting, management accounting, tax accounting etc. He exercises authority both for accounting within the organisation and for external reporting. The external reports include reports to government revenue collecting and regulatory bodies, such as Company Law Board and Income Tax. Department He may also supervise the company's internal audit and control systems. In addition to processing historical data, he is expected to supply a good deal of accounting information to top management concerning future operations, in line with the management's planning and control needs. Besides, he is also expected to supply detailed information to managers in different functional areas (like production, marketing, etc.) and at different levels of the organisation.

We may enumerate the functions of the controller as follows:

a) Designing and operating the accounting system
b) Preparing financial statements and reports
c) Establishing and maintaining systems and procedures
d) Supervising internal auditing and arranging for external audit
e) Supervising computer applications
f) Overseeing cost control
g) Preparing budgets
h) Making forecasts and analytical reports
i) Reporting financial information to top management
j) Handling tax matters.

Treasurer: He is the custodian arid manager of all the cash and near-cash resources of the firm. The treasurer handles credit reviews and sets policy for collecting receivables (debtors of the firm to whom the firm has sold goods or services) He also handles relationships with banks and other lending or financial institutions.

The Financial Executive Institute (of United States of America) makes the following distinction between controllership and treasurer ship functions:

Controllership	Treasurership
Planning and Control	Provision of Capital
Reporting and Interpreting	Investor Relations
Evaluating and Consulting	Short-term Financing
Tax Administration	Banking and Custody
Government Reporting	Credit and Collections
Protection of Assets	Investments
Economic Appraisal	Insurance

Finance Officer: Finance is the life blood of business. Procuring financial resources and their judicious utilisation are the two important activities of financial management. Financial management includes three major decisions: investment decision, financing decision and dividend decision. Investment decision is perhaps the most important decision because it involves allocation of resources. It is concerned with future which being uncertain involves risk. How the firm is allocating its scarce resources and is planning growth will largely determine its value in the market place. Financing decision is concerned with determining the optimum financing mix or capital structure. It examines the various methods by which a firm obtains short-term and long - term finances through various alternative sources. The dividend decision is concerned with question like how much of the profit is to be retained and how much is to be distributed as dividends. The finance manager has to strike a balance between the current needs of the enterprise for cash and the needs of the shareholders for an adequate return. The financial management of a large company is usually the responsibility of the finance director who may be in place of, or in addition to the controller. Often finance manager and controller are inter-changeable terms and only one of these two positions may be found in a company. The finance manager when there is a controller also in the organisation, is concerned with implementing the financial policy of the board of directors, managing liquidity, preparation of budgets and administration of budgetary control system, managing profitability, etc.

Though financial management is regarded as a separate area, this function is per-formed in several countries, including India, by the Accountant (or the Financial Controller) several large organisations however have a financial executive besides the chief accountant. Often, finance and accounting functions are clubbed together in one person in small organisations.

1.7 ACCOUNTING FRAMEWORK

The rules and conventions of accounting are commonly referred to as the conceptual framework of accounting. As with any discipline or body of knowledge, some underlying theoretical structure is required if a logical and useful set off practices and procedures are to be developed for reaching the goals of the profession and for expanding knowledge in that field. Such a body of principles is needed to help answer new questions that arise. No profession can thrive in the absence of a theoretical frame-work. According to Hendriksen (1977), Accounting theory may be defined as logical reasoning in the form of a set of broad principles that

(i) provide a general frame of reference by which accounting practice can be evaluated, and

(ii) guide the development of new practices and procedures. Accounting theory may also be used to explain existing practices to obtain a better understanding of them. But the most important goal of accounting theory should be to provide a coherent set of logical principles that form the general frame of reference for the evaluation and development of sound accounting practices.

The American Institute of Certified Public Accountants (AICPA) discusses financial accounting theory and generally accepted accounting principles as follows.

Financial statements are the product of process in which a large volume of data about aspects of the economic activities of an enterprise are accumulated, analysed, and reported. This process should be carried out in accordance with generally accepted accounting principles. Generally accepted accounting principle incorporate the consensus at a particular time as to which economic resources and obligations should be recorded as assets and liabilities by financial accounting, which changes in assets and liabilities should be recorded, when these changes should be recorded, how the assets and liabilities and changes in them should be measured, what information should be disclosed and how it should be disclosed, and which financial statements should be prepared.

Generally accepted accounting principles encompass the conventions, rules and procedures necessary to define accepted accounting practice at a particular time generally accepted accounting principles include not only broad guidelines of general application, but also detailed practices and procedures.

(Source: AICPA Statements of the Accounting Principles Board No.4 "Basic Concept and Accounting Principles Underlying Financial Statement of Business Enterprises", October, 1970, pp.54-55)

The word `principles' is used to mean a "general law or rule adopted or professed as a guide to action, a settled ground or basis of conduct or practice". You will note that this definition describes a principle as a **general** law or rule that is to be used as a **guide to action.** This implies that accounting principles do not prescribe exactly how each detailed event occurring in business should be recorded. Consequently, there are several matters in accounting practice that may differ from one company to another.

Accounting principles are man-made. They are accepted because they are believed to be useful. The general acceptance of an accounting principle (or for that matter any principle) usually depends on how well it meets the three criteria of **relevance, objectivity,** and **feasibility.** A principle is relevant to the extent that it results in meaningful or useful information to those who need to know about a certain business. A principle is objective to the extent that the information is not influenced by the personal bias or judgment of those who furnished it. Objectivity connotes reliability or trustworthiness which also means that the correctness of-the information reported can be verified. A principle is feasible to the extent that it can be implemented without undue complexity or cost.

1.7.1 Accounting Concepts

Earlier, we had described accounting as the language of business. As with language, accounting has many dialects. There are differences in

terminology. In dealing with the framework of accounting theory, one is confronted with a serious problem arising from differences in terminology. A number of words and terms have been used by different writers to express and explain the same idea or notion. Thus, confusion abounds in the literature in so far as the theoretical framework is concerned. The various terms used for describing the basic ideas are: concepts, postulates, propositions, basic assumptions, underlying principles, fundamentals, conventions, doctrines, rules, etc. Although each *of* these terms is capable of precise definition, general usage by the profession *of* accounting has served to give them loose and overlapping meanings. The same idea has been described by one author as a concept and by another as a convention. To take another instance, the idea implied in Conservatism has been labelled by one author as a (modifying) convention, by another as a principle and yet by another as a doctrine. The wide diversity in terminology to express the basic framework can only serve to confuse the learner

Without falling into the trap of this terminological maze, we are explaining below some widely recognised ideas and we call all of these concepts. We do feel, however, that some of these ideas have a better claim to be called `concepts', while the rest should be called `conventions'. Fundamental accounting concepts are broad general assumptions with underlie the periodic financial accounts of business enterprises. The reason why some of these ideas should be called concepts is that they are basic assumptions and have a direct bearing on the quality of financial accounting information. The alteration of any of the basic concepts (or postulates) would change the entire nature of financial accounting.

Business Entity Concept

In accounting we make a distinction between business and the owner. All the records are kept from the viewpoint of the business rather than from that of the owner. An enterprise is an economic unit separate and apart from the owner or owners. As such, transactions of the business and those of the owners should be accounted for and reported separately. In recording a transaction the important question is how does it affect the business? For example, if the owner of a shop were to take cash from the cash box for meeting certain personal expenditure, the accounts would show that cash had been reduced even though it does not make any difference to the owner himself. Similarly, if the owner puts cash into the business, he has a claim against the business for capital brought in.

This distinction can be easily maintained in the case of a limited company because a company has a legal entity (or personality) of its own. Like a natural person it can engage itself in economic activities of producing, owning, managing, storing, transferring, lending, borrowing and consuming commodities and services. Distinction, however, is difficult in the case of partnership, and even more so in the case of one-man business, accounting still maintains separation of business and owner. This implies that owner's personal and household expenses or obligations (e.g., expenditure on food, clothing, entertainment, debts, mortgages, etc.) will not appear in the books of account. It may be clarified that it is only for accounting purposes that

partnerships and sole proprietorships are treated as separate and apart from the owners though law does not make such distinction. A creditor would be justified in looking to both the business assets and the private estate of the owner for satisfaction of his claim. One reason for this distinction is to make it possible for the owners to have an account of the performance from those who manage the enterprise. The managers are entrusted with funds supplied by owners, banks and others; they are responsible for the proper use of the funds. The financial accounting reports are designed to show how well this responsibility has been discharged.

Activity 1.1

Apart from the reason mentioned above, can you think of any other reason for justification of Business Entity Concept?

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Activity 1.2

The proprietor of a firm withdrew Rs. 50,000 for his personal use. This was shown as an expense of the firm. Profits were reduced to pay a lower tax. Is this right from accounting point of view?

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Money Measurement Concepts

In accounting, only those facts which can be expressed in terms of money are recorded. As money is accepted not only as a medium of exchange but also as a store of value, it has a very important advantage since a number of widely different assets and equities can be expressed in terms of a common denominator. Without these adding heterogeneous factors like five buildings, ten machines, six trucks will not have much meaning.

While money is probably the only practical common denominator and a yardstick, we must realise that this concept imposes two sever limitations. In the first place, there are several facts which, though vital to the business, cannot be recorded in the books of account because they cannot be expressed

in money terms. For example, the state of health of the Managing Director of a company who has been the key contributor to the success of business is not recorded in the books. Similarly, the fact that the Production Manager and the Chief Internal Auditor are not on speaking terms, or that a strike is about to begin because labour is dissatisfied with the poor working conditions in the factory, or that a competitor has recently taken over the best customer, or that it has developed a better product and so on will not be recorded even though all these events are of great concern to the business.

From this standpoint, one could say that accounting does not give a complete account of the happenings in the business. You will appreciate that all these have a bearing on the future profitability of the company.

Secondly, use of money implies that a rupee today is of equal value to a rupee ten years back or ten years later. In other words, we assume stable or constant value of rupee. In the accounts, money is expressed in terms of its value at the time an event is recorded. Subsequent changes in the purchasing power of money do not affect this amount. You are perhaps aware that most economies today are in inflationary conditions with rising prices. The value of a rupee of 1980's has depreciated to an unbelievably low level in the 90s. Most accountants know fully well that purchasing power of rupee does change but very few recognise this fact in accounting books and make allowance for changing price level. This is so despite the fact that accounting profession has devoted considerable attention to this problem and numerous suggestions have been made to account for the effects of changes in the purchasing power of money. In fact, one of the major problems of accounting today is to find means of solving the measurement problem, that is, how to extend the quality and the coverage of meaningful information. It will be desirable to present in a supplementary analysis the effect of price level changes on the reported income of the business and the financial position.

Activity 1.3

Suppose the Managing Director of a company is killed in a plane crash. To the extent "an organisation is the lengthened shadow of a man", the real value of the company will change immediately and this will be reflected in the market price of the company shares. Will this have any effect as far as the accounts of the company are concerned?

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Continuity Concept

Accounting assumes that the business (an accounting entity) will continue to operate for a long time in the future unless there is good evidence to the contrary. The enterprise is viewed as a **going concern,** that is, as continuing in operation, at least in the foreseeable future. The owners have no intention nor have they the necessity to windup or liquidate its operations.

This assumption is of considerable importance for it means that the business is viewed as a mechanism for adding value to resources it uses. The success of the business can be measured by the difference between output values (sales or revenues) and input values (expenses). Therefore, all unused resources can be reported at cost rather than at market values.

The assumption that the business is not expected to be liquidated in the foreseeable future, in fact, establishes the basis for many of the valuations and allocations in accounting. For example, depreciation (or amortisation) procedures rest upon this concept. It is this assumption which underlies the decision of investors to commit capital to enterprise. The concept holds that continuity of business activity is the reasonable expectation for the business unit for which the accounting function is being performed. Only on the basis of this assumption can the accounting process remain stable and achieve the objective of correctly recording and reporting on the capital invested, the efficiency of management, and the position of the enterprise as a going concern. Under this assumption neither higher current market values nor liquidation values are of particular importance in accounting. This assumption provides a basis for the application of **cost** in accounting for assets.

However, if the accountant has good reasons to believe that the business, or some part of it, is going to be liquidated or that it will cease to operate (say within a year or two), then the resources could be reported at their current values (or liquidation values).

Activity 1.4

A company revalue's its buildings which were purchased at a cost of Rs. 5,00,000 in 2005 to Rs. 50,00,000 in 2021 and records the difference of Rs. 45,00,000 as profit for the year 2021. Is this practice right?

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Cost Concept

The resources (land, buildings, machinery, property rights, etc.) that a business owns are called assets. The money values that are assigned to assets are derived from the cost concept. This concept states that an asset is worth the price paid for or cost incurred to acquire it. Thus, assets are recorded at their original purchase price and this cost is the basis for all subsequent accounting for the assets. The assets shown on the financial statements do not necessarily indicate their present market worth (or market values). This is contrary to what is often believed by an uninformed person reading the statement or report. The term `book value' is used for amount shown in the accounting records.

In case of certain assets the accounting values and market values may be similar; cash is an obvious example. In general, the longer an asset has been owned by the company the lesser, are the chances that the accounting value will correspond to the market value.

The cost concept does not mean that all assets remain on the accounting records at their original cost for all time to come. The cost of an asset that has a long but limited life is systematically reduced during its life by a process called `depreciation' which will be discussed at some length in a subsequent unit. Suffice it to say at this point that deprecation is a process by which the cost of the asset is gradually reduced (or written off) by allocating a part of it to expense in each accounting period. This will have the effect of reducing the profit of each period. In charging depreciation the intention is not to change depreciation equal to the fall in the market value of the asset. As such, there is no relationship between depreciation and changes in market value of the assets. The purpose of depreciation is to allocate the cost of an asset over its useful life and not to adjust its cost so as to bring it closer to the market value.

You must be wondering as to why assets are shown at cost even when there are wide differences between their costs and market values. The main argument is that the cost concept meets all the three basic criteria of **relevance, objectivity** and **feasibility.**

Accrual Concept

The accrual concept makes a distinction between the receipt of cash and the right to receive it, and the payment of cash and the legal obligation to pay it. In actual business operations, the obligation to pay and the actual movement of cash may not coincide. The accrual concept recognises this distinction. In connection with the sale of goods, revenue may be received

(i)before the right to receive arises, or

(ii) after the right to receive has been created.

The accrual concept provides a guideline to the accountant as to how he

should treat the cash receipt and the rights related thereto. In the former case the receipt will not be recognised as the revenue of the period for the reason that the right to receive the same has not yet arisen. In the latter case the revenue will be recognised even though the amount is received in the subsequent period.

Similar treatment would be given to expenses incurred by the firm. Cash payments for expenses may be made before or after they are due for payment. Only those sums which are due and, payable would be treated as expenses. If a payment is made in advance (i.e. it does not belong to the accounting period in question) it will not be treated as an expense, and the person who received the cash will be treated as a debtor until his right to receive the cash has matured. Where an expense has been incurred during the accounting period but no payment has been made, the expense must be recorded and the person to whom the payment should have-been made is shown as a creditor.

Activity 1.5

The accounting year of a firm closes on 31st December each year. The rent for business premises of Rs 50,000 for the last quarter could not be paid to the owner on account of his being away in a foreign country. Should the rent payable be taken into account for computing the firm's income for the accounting year?

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Activity 1.6

A government contractor supplies stationery to various government offices. Some bills amounting to Rs. 10,000 were still pending with various offices at the close of the accounting year on 31st March. Should the businessman take the revenue of Rs.10,000 into account for computing the net profit of the period?

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Concept of Conservatism

The concept of conservatism, also known as the concept of prudence, is often stated as" anticipate no profit, provide for all possible losses". This means an accountant should follow a cautious approach. He should record lowest possible value for assets and revenues, and the highest possible value for liabilities and expenses. According to this concept, revenues or gains should be recognised only when they are realised in the form of cash or assets (usually legally enforceable debts)the ultimate cash realisation of which can be assessed with reasonable certainty. Further, provision must be made for all known liabilities, expenses and losses whether the amount of these is known with certainty or is at best an estimate in the light of the information available. Probable losses in respect of all contingencies should also be provided for. A contingency is a condition or a situation, the ultimate outcome of which –gain or loss-cannot be determined accurately at present. It will be known only after the event has occurred (or has not occurred). For example, a customer has filed a suit for damage against the company in a court of law. Whether the judgment will be favourable or unfavourable to the company cannot be determined for sure. Hence, it will be prudent to provide for likely loss in the financial statements. As a consequence of the application of this concept, net assets are more likely to be understated than overstated, and income is more likely to be overstated than understated. Based on this concept is the widely advocated practice of valuing inventory (stock of goods left unsold) at cost or market price whichever is lower? You will note that this convention, in a way, modifies the earlier cost concept. It should be stated that the logic of this convention has been under stress recently; it has been challenged by many writers on the ground that it stands in the way of fair determination of profit and the disclosure of true ad fair financial position of the business enterprise. The concept is not applied as strongly today as it used to be in the past. In any case, conservatism must be applied rational Y as over-conservatism may result in misrepresentation.

Materiality Concept

There are many events in business which are trivial or insignificant in nature. The cost of recording and reporting such events will not be justified by the usefulness of the information derived. Materiality concept holds that items of small significance need not be given strict theoretically correct treatment. For example, a paper stapler costing Rs. 30 may last for three years. However, the effort involved in allocating its cost over the three-year period is not worth the benefit than can be derived from this operation. Since the item obviously is immaterial when related to overall operations, the cost incurred on it may be treated as the expense of the period in which it is acquired. Some of the stationery purchased for office use in any accounting period may remain unused at the end of that period. In accounting, the amount spent on entire stationery would be treated as expense of the period in which the stationery was purchased, notwithstanding the fact that a small part of it still lies in stock. The value (or cost) of the stationery lying in stock would not be treated as an asset and carried forward as a resource to the next period. The accountant would regard the stock lying unused as immaterial. Hence, the

entire amount spent on stationery would be taken as the expense of the period in which such expense was incurred.

Where to draw the line between material and immaterial events is a matter of judgment and common sense. There are no hard and fast rules in this respect. Whether a particular item or occurrence is material or not, should be determined by considering its relationship to other items and the surrounding circumstances. It is desirable to establish and follow uniform policies governing such matters.

Consistency Concept

In practice, there are several ways to record an event or a transaction in the books of account. For example, the trade discount on raw material purchased may be deducted from the cost of goods and net amount entered in the books, or alternatively trade discount maybe shown as the income with full cost of raw material purchased entered in the books. Similarly, there are several methods to charge depreciation (which is a decrease in the value of assets caused by wear and tear, and passage of time) on an asset or of valuing inventory. The consistency concept requires that once a company has decided on one method and has used it for some time, it should continue to follow the same method or procedure for all subsequent events of the same character unless it has a sound reason to do otherwise. If for valid reasons the company makes any departure from the method it has been following so far, then the effect of the change must be clearly stated in the financial statements in the year of change.

You will appreciate that much of the utility of accounting information lies in the fact that one could draw valid conclusions from the comparison of data drawn fromfinancialstatementsofoneyearwithdataoftheotheryear.Comparabilityisessential so that trends or differences may be identified and evaluated. Inconsistency in the application of accounting methods might significantly affect the reported profit and the financial position. Further, inconsistency also opens the door for manipulation of reported income and assets. The comparability of financial information depends largely upon the consistency with which a given class of events are handled in ac-counting records year after year.

Activity 1.7

A company had been charging depreciation on a machine at Rs. 10,000 per year for the first 3 years. Then it began charging Rs. 9,000 for 4th year and Rs. 7,800 for 5thyearand so on. Is this practice justified? Give reasons for your answer.

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Periodicity Concept

Although the results of operations of a specific enterprise can be known precisely only after the business has ceased to operate, its assets have been sold off and liabilities paid off, the knowledge of the results periodically is also necessary. Those who are interested in the operating results of business obviously cannot wait till the end. The requirements of these parties therefore force the accountant to report for the changes in the wealth of a firm for short time periods. These time periods in actual, practice vary, though a year is the most common interval as a result of established business practice, tradition and government requirements. Some firms adopt calendar year, some others financial year of the government. But more and more firms are changing to the `natural' business year the end of which is marked by relatively lower or lowest volume of business activity in the twelve-month period. The custom of using twelve-month period is applied only for external reporting. The firms usually adopt a shorter span of interval, say one month or three months, for internal reporting purposes.

The allocation of long-term costs and the difficulties associated with this process directly stem from this concept. While matching the earnings and the cost of those earnings for any accounting period, all the revenues and all the costs relating to the year in question have to be taken into account irrespective of whether or not they have been receivedincashorpaidcash.Despitethedifficultiesthatariseinallocationsand adjustments, short-term reports (i.e., yearly reports) are of such importance to owners, management, creditors, and other interested parties that the accountant has no option but to resolve such difficulties. Obviously, the utility of the periodic financial statements outweighs the difficulties.

While going through all these concepts, probably you have developed a feeling that they come in conflict with each other. You are right. We illustrate this by considering some of these concepts in the context of valuation of business properties. Suppose, a firm acquired a piece of land in 2017 for a price of Rs.6,00,000. Factory premises were constructed in 2018 and operations commenced in2019. The firm has been successful in achieving desired profit for the past year. The Balance Sheet (a statement of assets and liabilities) for the year 2019 is being prepared and `Land' is required to be valued. The estimated current market price of this land is Rs. 60,00,000.

Should you recommend that the land be valued at Rs. 60 lakhs? The answer is `no' obviously. Land would be carried on the Balance Sheet at its original cost of Rs,6,00,000 only. This decision is supported by several of the concepts discussed in this section. In the first place, the stability of purchasing power of money implied in the **money measurement concept** prevents us from recognising accretion in values as aresultofchangingpricelevels.Then,the**realisationconcept**willnotallowunreali sed profits to be included as long as land is held by the company and not soldaway.Youmaynotethatthe**continuity**orgoing**concern**conceptmakesanypo ssible market value of land irrelevant for balance sheet because the firm has

to continue in business and land will be needed by it for its own use. In this connection,itcouldbearguedthatiflandwereshownonthebalancesheetatitsestimatedcurrentmarketvalue,theownermightdecidetodiscontinuethebusiness,sellthel and and retire. The principle of **objectivity** is now introduced into the argument. It can be easily seen that in a situation like this the cost of acquisition of land at Rs.6,00,000 in 2000 is the objective fact because it is based on a transaction that actually took place and this objective evidence is capable of being verified. In contrast, the estimate of current market value figure may be suspect. It raises many questions. Do you have a market quotation for an identical plot of land? Has a similar plot of land been sold recently and can we pick it up as verifiable evidence of the current market price? It may be said that even if market price for an identical plot of land is not available, estimates by an accredited valuer may be accepted as verifiable evidence of the market price. Further complications may be noticed if buildings and facilities have been erected on the plot of land. Is it possible to estimate the value of land without factory buildings and other facilities constructed on it? The answer is a flat `no' and the conservatism concept will then deter you from accepting an estimate of market value since it cannot be ascertained with reasonable accuracy.

1.7.2 Accounting Standards

The basic concepts discussed in the foregoing paragraphs are the core elements in the theory of accounting. These concepts (postulates or conventions), however, permit a variety of alternative practices to co-exist. As a result, the financial results of different companies cannot be compared and evaluated unless full information is available about the accounting methods which have been used. The varieties of accounting practices have made it difficult to compare the financial results of different companies. Further, the alternative accounting methods have also enabled the reporting of different results, even by the same company.

Need for Standards: The information contained in published financial statements is of particular importance to external users, such as shareholders and investors. Without such information they would not be able to take right decisions about their investments. As in several other countries, Parliament in India has specified in the Companies Act the type and minimum level of information which companies should disclose in financial statements. It is the responsibility of the accounting profession to ensure that the required information is properly presented. It is evident that there should not be too much discretion to companies and their accountants to present financial information the way they like. In other words, the information contained in financial statements should conform to carefully considered standards. Public confidence in accounting information contained in financial statements will grow if they are satisfied as to the logic, consistency and fairness of the figures shown there in. For instance, a company could incur a loss and still pay dividends by manipulating the loss into a profit. In the long run this course may have a disastrous effect on the company and its investors. You would be better able to appreciate the function of accounting standards by relating them to the basic purpose of financial statements which is the

communication of information affecting the allocation of resources. Ideally, such information should make it possible for investors to evaluate the investment opportunities offered by different firms and allocate scarce resource to the most efficient ones. In theory, this process should result in the capital distribution of resources within the economy and should maximise the potential benefit to society

In this context unless there are reasonably appropriate standards, neither the purpose of the individual investor nor that of the nation as a whole can be served. The purpose is likely to be served if the accounting methods used by different firms for presenting information to investors allow correct comparisons to be made. For example, they should not permit a company to report profits which result simply from a change in accounting methods rather than from increase in efficiency. If companies were free to choose their accounting methods in this way, the consequences might be that deliberate distortions are introduced, leading eventually to misapplication of resources in the economy. The relatively less efficient companies will be able to report fictitious profits, and as a result scarce capital of society will be diverted away from the more efficient companies which have adopted stricter and consistent accounting methods.

1.7.3 Changing Nature of Generally Accepted Accounting Principles (GAAP)

Generally accepted accounting principles are usually developed by professional accounting bodies like American Institute of Certified Public Accountants (AICPA)and Institute of Chartered Accountants of India (ICAI). In developing such principles, however, the accounting profession has to reflect the realities of social, economic, legal and political environment in which it operates. Besides academic research, regulatory and tax laws of the government e.g., Companies Act, 1956, income Tax Act, 1961 etc., in a large measure, influence the formulation of acceptable accounting principles. Stock exchanges and other regulatory agencies like Securities and Exchange Board of India (SEBI) have laid down rules for disclosure and extent of accounting information.

Since the environment in which business operates, undergoes constant changes as result of changes in economic and financial policies of the Government and changes in the structure of business, continued evaluation of the relevance of generally accepted accounting principles is required. In this sense, the principles of accounting are not ever-lasting truths. You will appreciate that it is the development of relevant accounting principles in tune with the present day needs of the society that would make it possible for the business enterprises to develop financial statements which would be acceptable and of value to the end users.

1.8 SUMMARY

- Accounting can be defined as a process of reporting, recording, interpreting and summarising economic data.

- Assets are those resources owned by organization which helps the company to earn profit.
- The economic value of an obligation or debt that is payable by the enterprise to other establishment or individual is referred to as liability.
- Capital represents the owner's investment (Capital) in the trade minus the owner's withdrawal from the trade (Drawings) + the net income since the business concern commenced.
- The major objectives of accounting are –
  - To maintain a systematic record of business transactions
  - To ascertain profit and loss
  - To determine the financial position
  - To provide information to various users assist the management
- The major characteristics of accounting are –
  - Identifying financial transactions and events
  - Measuring the transactions
  - Recording of transactions
  - Classifying the transactions
  - Summarising the transactions
  - Analysing and interpreting financial data
  - Communicating the financial data or reports to the users
- Financial, Cost and management accounting are the major branches of accounting
- The Accounting process is the process of collecting, recording, classifying, summarising and communicating financial information to the users which help them in taking decisions.
- Book keeping is a component of accounting that involves the process of identifying the financial transactions, measuring, recording and classifying those transactions that have occurred in the course of business.
- Accounting begins where Book Keeping ends. It is a wider concept and includes summarizing, interpreting and communicating the financial data to the users of financial statements.
- Accountancy refers to systematic knowledge of the accounting principles and the techniques
- The major benefits of accounting are –
  - Provide assistance to management
  - Facilitates comparative study
  - Helps in settlement of tax liability
  - Helpful in raising loan

- Helpful in decision making
- Substitute of human memory
- Helps in the valuation of business

- Accounting is also criticized for not being precise, uses historical information, ignores the effect of price level changes and qualitative information and is often affected by window dressing.
- Users of accounting information include owners, management, employees, trade union, customer, suppliers, bank, creditors, investors and researchers.
- Qualitative characteristics are the attributes of accounting information, which enhance it's understand ability and usefulness. It includes reliability, relevance, and comparability and understand ability.
- There are two systems of recording transactions in the books of accounts namely single entry and double entry system.
- In order to maintain uniformity and consistency in preparing and maintaining books of accounts, certain rules or principles have been evolved. These rules/principles are known as concepts and conventions.

1.9 SELF-ASSESSMENT QUESTIONS

1. Confidence and trust that the reported information is a reasonable representation of the actual items and events, that have occurred, indicate which qualitative characteristic of accounting information.
2. State whether a large order of supply of goods received by the firm be recorded in books.
3. Appointment of a new managing director is not recorded in the books of accounts. Why?
4. What is a person to whom money is owed by a firm called?
5. Mr Raj, an electronic goods dealer, gifted a microwave of value Rs. 30,000 to his friend Rohan and recorded it in books as drawing. Is he correct?
6. Distinguish between financial accounting, cost accounting, and management accounting.
7. Distinguish between book-keeping, accounting, and accountancy.
8. Basic objective of accounting is to provide useful information to various users. Besides these, there are many other objectives of accounting. Explain any four of them.
9. Select an appropriate option

   I. That a business may only report activities on financial statements that are specifically related to company operations, not those activities that affect the owner personally, is known as which of the following?

      a. separate entity concept

b. monetary measurement concept

c. going concern assumption

d. time period assumption

II. That companies can present useful information in shorter time periods such as years, quarters, or months is known as which of the following?

a. separate entity concept

b. monetary measurement concept

c. going concern assumption

d. time period assumption

III. The system of using a monetary unit, such as the US dollar, to value the transaction is known as which of the following?

a. separate entity concept

b. monetary measurement concept

c. going concern assumption

d. time period assumption

IV. Which of the following terms is used when assuming a business will continue to operate in the foreseeable future?

a. separate entity concept

b. monetary measurement concept

c. going concern assumption

d. time period assumption

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UNIT 2 PREPARATION OF BOOKS OF ACCOUNTS

OBJECTIVES

After going through this unit, you will be able to-

- Know the meaning and steps of accounting process;
- Understand the meaning and importance of journal; and
- know the rules of journalising.

STRUCTRE

2.1 Introduction

2.2 Analysis of Business transaction

2.2.1 An overview of Balance Sheet

2.2.2 Classification of Accounts

2.2.3 Dual Aspect Concept

2.2.4 Accounting Equation Approach

2.3 Journal

2.3.1 Journalizing

2.3.2 Important Considerations for Recording the Business Transactions

2.4 Ledger

2.4.1 Posting in the Ledger

2.4.2 Balancing of Ledger Accounts

2.5 Summary

2.6 Self-Assessment Questions

2.1 INTRODUCTION

A business enterprise generally prepares the following two basic financial statements:

Profit and Loss Account to ascertain the profit earned or loss incurred during an accounting period.

Balance Sheet to ascertain the financial position of the business as on a particular date.

Cash Flow Statement:

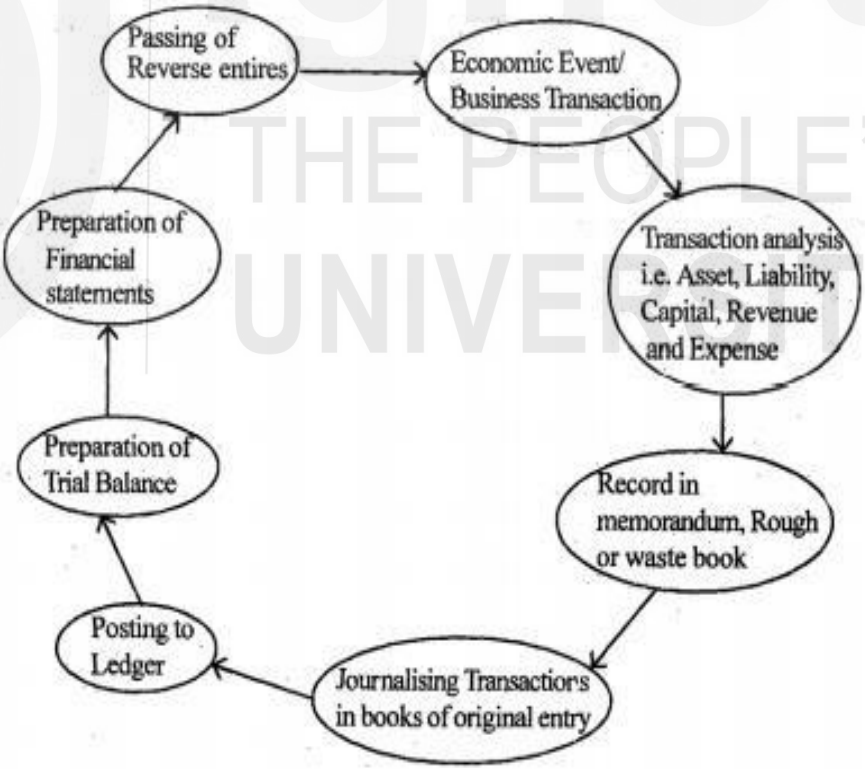
Generally, a business enterprise has numerous transactions every day during an accounting period. Unless the transactions are recorded and analysed, it is not possible to determine the impact of each transaction in the above two basic statements. Traditionally, accounting is a method of collecting, recording, classifying, summarising, presenting and interpreting financial data aspect of an economic activity. The series of business transactions

occurring during the accounting period and its recordingis referred to an accounting process/mechanism. An accounting process is a complete sequence of accounting procedures which are repeated in the same order during each accounting period.

Accounting process involves the following steps or stages:

1. **Identification of transaction:** In accounting, only business transactions are recorded .A transaction is an event which can be expressed in terms of money and which brings change in the financial position of a business enterprise. An event is an incident or a happening which may or may not bring any change in the financial position of a business enterprise. Therefore, all transactions are events but all events are not transactions. A transaction is a complete action, to an expected or possible future action. In every transaction, there is movement of value from one source to another. Transactions may be external (between a business entity and a second party, e.g., goods sold on credit to Hari or internal (do not involve second party, e.g., depreciation charged on the machinery).

2. **Recording the transaction:** Journal is the first book of original entry in which all transactions are recorded event wise and date-wise and presents a historical record of all monetary transactions. It may further be divided into sub-journals as well which are also known subsidiary books.


Passing of Reverse entires
Economic Event/ Business Transaction
Transaction analysis i.e. Asset, Liability, Capital, Revenue and Expense
Record in memorandum, Rough or waste book
Journalising Transactions in books of original entry
Posting to Ledger
Preparation of Trial Balance
Preparation of Financial statements

ACCOUNTING PROCESS

3. **Classifying:** Accounting is the art of classifying business transactions. Classification means statement setting out for a period where all the similar transactions relating to a person, a thing, expense, or any other subject are grouped together under appropriate heads of accounts.

4. **Summarising:** Summarising is the art of making the activities of the business enterprise asclassified in the ledger for the use of management or other user groups i.e. Sundry debtors, Sundry creditors etc. Summarisation helps in the preparation of Profit and Loss Account and Balance sheet for a particular fiscal year.

5. **Analysis and Interpretation:** The financial information or data as recorded in the books of an account must further be analysed and interpreted so to draw useful conclusions. Thus, analysis of accounting information will help the management to assess in the performance of business operation and forming future plans also

6. **Presentation or reporting of financial information:** The end users of accounting statements must be benefited from analysis and interpretation of data as some of them are the 'stockholders' and other one the 'stake holders'. Comparison of past and present statement and reports, use of ratio and trend analysis are the different tools of analysis and interpretation

2.2 ANALYSIS OF BUSINESS TRANSACTION

Accounting process starts with a business transaction and is followed by analysis of the transaction for the purpose of classification and recording of the transaction. Once the transaction is recorded, similar type of transactions are summarized and the net figure arrived it is taken to the financial statements.

VOUCHER

Accounting is a process which starts and includes steps right from recording of business transactions of monetary character to the communicating or reporting the results thereof to the various interested parties. The first step in the accounting process is to analyse the transaction and record it on a pre designed slip giving details of accounts to be debited and credited. Since vouchers provide an evidence of transaction source documents are also attached to the accounting voucher entries in the Journal are done on the basis of vouchers and control accounts are also maintained on the basis of vouchers. A proper voucher system ensures minimization of errors of omission and commissions.

Each transaction is recorded in books of accounts providing all the required information of the transaction. Since each transaction has an effect on the financial position of the business, there should be a documentary evidence to establish the monetary accounts at which transactions are recorded and also the transactions are properly authorised. The common documents that are generally used areas under:

(i) Payment voucher: A Payment voucher usually on a printed standard form is a record of payment. When payment is made for an expense, generally a bill is prepared to record full particulars of the claim by the person or organisation receiving payment. From the bill, the accounting department prepares a voucher for each payment to be made, no matter whether the amount that is paid for the goods purchased, or to pay employee's salaries, or to pay for services or to pay for any other asset acquisition.

(ii) Receipt voucher: A Receipt voucher is a document which is issued against cash receipts. It may also be a printed standard form. This document shows that a certain sum of money was received from a person or organisation and also, contains information of the purpose for which the money is received. It is signed by a responsible employee, authorised by the management to receive the money.

(iii) Transfer voucher: A Transfer voucher is used to record the residuary transactions. An internal transaction or a transaction not involving any cash payment or cash receipt is recorded in the transfer voucher. Examples are: Goods purchased on credit; depreciation of assets, outstanding expenses, accrued income, etc.

2.2.1 An overview of Balance Sheet

Let us understand the concept of a balance sheet with the help of an example.

Mr.Raghav is the owner of a start-up firm RT Ltd. On 1st April 2020, the position of his business firm RT Ltd is as follows: He has invested his personal savings worth Rs. 10,00,000 cash into the firm as Capital to start the business. He also took a loan from bank of an amount equal to Rs. 3,50,000 for buying an Office Premises for his business firm. Further, he purchased some Machinery worth Rs. 2,00,000 and a Motor car worth Rs. 3,00,000 for the operations of the firm. To start the business operations, he brought in Inventory worth Rs. 2,50,000 and kept an amount of Rs. 20,000 as Cash and also deposited an amount of Rs. 50,000 in a Savings bank account for the purposes of business. Apart from this, Mr.Raghav invested the remaining amount of Rs. 1,80,000 in government bonds on behalf of his firm RT Ltd.

Now let us generate a balance sheet for RT Ltd. as on 1st April 2020 on the basis of given information. We will classify the above information into the resources owned by RT Ltd. and the claims against those resources.The commonly accepted format of Balance Sheet in India shows Liabilities on the **left-hand side** and Assets on the **right-hand side**.

As already discussed, a balance sheet is always prepared from the point of view of a business entity and not the owner. Hence, the balance sheet or the position statement of RT Ltd. as on 1st April 2020 would be presented as follows:

RT Ltd.

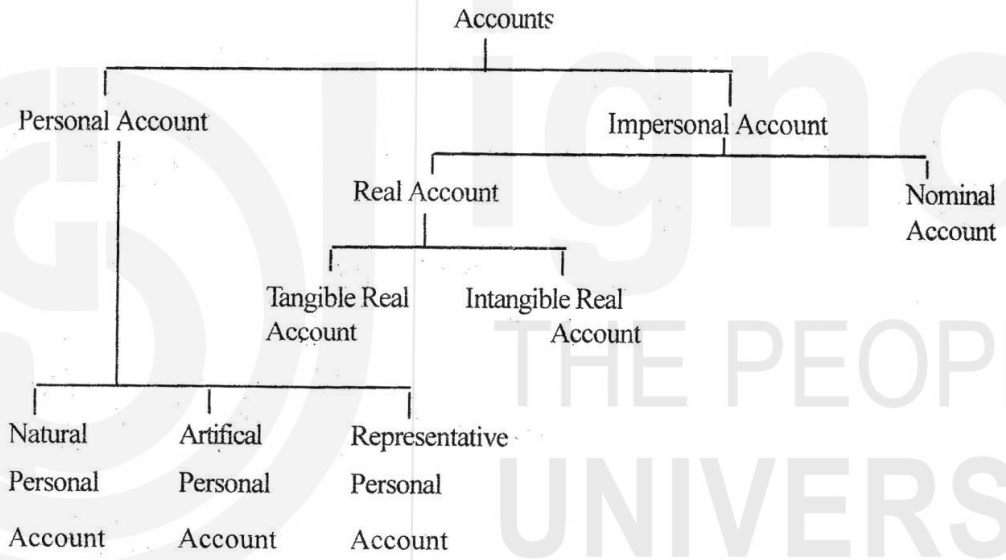
Balance Sheet as on 1st April 2020

Liabilities (obligations of the firm)	Amount (Rs.)	Assets (resources owned by the firm)	Amount (Rs.)
Capital	10,00,000	Machinery	2,00,000
Loan from Bank	3,50,000	Building (Office Premise)	3,50,000
		Motor Car	3,00,000
		Investment in Bonds	1,80,000
		Inventory	2,50,000
		Cash	20,000
		Savings Bank Account	50,000
Total:	13,50,000	Total:	13,50,000

Here, we can see that the total value of resources owned by RT Ltd. which includes building, machinery, car, cash, investments and inventory is worth Rs. 13,50,000. In accounting, these resources owned by the business are referred to as *assets*. Further we observe that the claims against these resources in the form of bank loan stands at Rs. 3,50,000. Such claims against business entity's assets are referred to as *liabilities*. Now, the net worth of RT Ltd. will be calculated by deducting the claims against its worth from its total worth of resources which is an amount equal to Rs. 10,00,000 (*13,50,000 *minus* 3,50,000).

Thus, the net worth of an entity represents the claims of its owner(s) which is also referred to as **owner's equity**. We also learnt that the items of monetary value possessed by an entity are referred to as **assets**. Whereas, the amount owed by an entity which represents claims against its assets by outsiders are called as **liabilities**. Thus, we can say that the position statement is a summary of the assets, liabilities and net worth of an entity at a specific point of time.

2.2.2 Classification of Accounts



(I) Personal Accounts: Accounts which are related with accounts of individuals, firms, companies are known as personal accounts. The personal accounts may further be classified into three categories:

Natural Personal Accounts: Accounts of individuals relating to natural persons such as Akhil'sA/c, Rajesh'sA/c, Sohan'sA/care natural personal accounts.

(i) Artificial Personal Accounts: Accounts of companies, institutions such as Reliance Industries Ltd; Lions Club, M/s Sham & Sons, National College account are artificial personal accounts. These exist only in the eyes of law.

(ii) Representative Personal Accounts: The accounts which represent some person such as wage outstanding account, prepaid insurance account, and accrued interest account are considered as representative personal accounts.

2. **Real Accounts:** Real accounts are the accounts related to assets/properties. These may beclassified into tangible real account and intangible real account. The accounts relating to tangible assets such as building, plant, machinery, cash, furniture etc are classified as tangible real accounts. Intangible real accounts are the accounts related to intangible assets such as goodwill, trademarks, copyrights, franchisees, Patents etc.

3. **Nominal Accounts:** The accounts relating to income, expenses, losses and gains are classifiedas nominal accounts. For example Wages Account, Rent Account, Interest Account, SalaryAccount,BadDebts Accounts.

RULES FOR DEBIT AND CREDIT

Typeof Accounts		Rules for Debit	Rules for Credit
(a)	PersonalAccount	Debit the receiver	Credit the giver
(b)	Real Account	Debit what comes in	Credit what goes out
(c)	Nominal Account	Debit all the expenses and losses	Credit all the incomes and gains

Learners who are studying accounting for the first time would find it difficult to classify the accounts on the basis explained above. You would be able to classify the account on the basis of asset, liabilities, expense and income if you understand the Dual aspect concept and accounting equation approach given below.

2.2.3 Dual Aspect Concept

Let us take a step further in the previous example: suppose Mr.Raghav purchased some goods (raw material) worth Rs. 10,000 in cash. This transaction will have a dual impact on the balance sheet of RT Ltd. First, the inventory will increase by Rs. 10,000 and second, the cash balance will decrease by Rs. 10,000. Similarly, if the goods were purchased by Mr.Raghav on credit for Rs. 10,000, the inventory (asset) will go up by Rs. 10,000 whereas, the creditors will also increase by Rs. 10,000. This brings us to a fundamental accounting concept known as **dual-aspect**in accounting. This concept explains that each transaction made by a business entity impacts the business in two different aspects which are equal and opposite in nature. It means that every business transaction will affect at least two accounts which imply that for every debit there is an equivalent credit and vice versa. For example, if your company borrows money from the bank, the company's asset Cash is increased (debited) and the company's liability Notes Payable is also increased (credited). It is because of this feature that both sides (assets and liabilities) of the balance sheet will always be equal.This concept forms the basis of double-entry accounting and is used by all accounting frameworks for generating accurate and reliable financial statements. The dual aspect concept is also explained in the fundamental accounting equation:

ASSETS = LIABILITIES + OWNERS EQUITY

The above accounting equation indicates that an entity's assets have to be equal to the sum of its liabilities and owner's equity. This equation is considered to be the foundation of double entry system of accounting. It ensures that every entry made on the debit side has a corresponding entry made on the credit side and vice versa. Hence, the double entry made will automatically balance the accounting equation. To sum it up,

i. An increase in assets is followed by an increase in liabilities and/or equity and vice versa.

ii. A decrease in assets is followed by a decrease in liabilities and/or equity and vice versa.

iii. An increase in an asset is followed by a decrease in another asset and vice versa.

iv. An increase in a liability is followed by a decrease in another liability and vice versa.

Let's consider the following series of examples to explain this concept further:

(i) Mr.Raghav further invested cash worth of Rs. 4,00,000 into his business RT Ltd. The effect of this transaction will be as follows:

- Capital will increase by Rs. 4,00,000.*(Liabilities side)*
- Cash will also increase by Rs. 4,00,000.*(Assets side)*

(ii) Also, Mr.Raghav repaid the loan in cash, he took from bank for his office building worth Rs. 3,50,000. This transaction will have the following effect:

- Loan from Bank will reduce by Rs. 3,50,000. *(Liabilities side)*
- Cash will also reduce by Rs. 3,50,000. *(Assets side)*

(iii) Lastly, Mr.Raghav sold the investments he made in government bonds for Rs. 2,00,000 cash. In this transaction, RT Ltd. made a profit of Rs. 20,000 (as the gold bonds were purchased for Rs. 1,80,000 initially). The effect of this transaction will be shown as follows:

- Investment in Government Bonds will reduce by Rs. 1,80,000. *(Assets side)*
- Cash will increase by Rs. 2,00,000. *(Assets side)*
- Profits of Rs. 20,000 will be shown by an increase in Capital. *(Liabilities side)*

Hence, a balance sheet will always balance its two sides.The effect on one account will be compensated by an equal and opposite effect on another account.

2.2.4 Accounting Equation Approach

The basic accounting equation is

Assets = Liabilities + Capital

In this equation Assets refer to the resources owned by the business enterprise (of resources owned by the owner/s of business enterprise). These resources are expected to generate future cash flows and earnings for the business. Liabilities are the claim of the others on the assets of the business or in simple terms it is the debt outstanding expenses payable to various stakeholders.

Capital means the amount which is payable by the business enterprise to the owners of the business. In brief the assets are the resources which business enterprise owns and capital and liabilities are what business enterprise owns to others.

The above mentioned equation forms the basis of double entry system of book keeping. Every transaction recorded under this method has dual effect viz. it affects two accounts simultaneously. For example Furniture worth Rs. 5000/- is purchased is cash / credit. Now when the furniture is purchased in cash two accounts are affected. Cash which is an asset decreases by Rs. 5000/- and Furniture A/C which is an asset increases by Rs. 5000/-. In second case when furniture is bought on credit again two accounts are affected. First, Furniture A/C increased by Rs. 5000/- and a new liability of Rs. 5000/- is created, thus the increase in liability of Rs. 5000/-. Thus in nutshell every business transaction will have a twofold effect if there is an increase in a particular asset the counterpart of that transaction would be decrease in some other assed or creation of decrease in some other asset or creation of new liability. This is also known as Dual Aspect Concept.

From the above example it is clear that effect on one account will be compensated by an equal and opposite effect on another account/s.

When we use accounting equation approach for recording business transactions all accounts are divided into three categories namely:

1. Asset Account
2. Liability Account
3. Capital Account

Now let us understand the basic rules used for recording changes in assets liabilities and capital

Rule no. 1: For recording changes in assets

Increase in assets is debited and decrease in assets is credited

Rule no. 2: for recording changes in liabilities and capital Increase in Liabilities and Capital is Credited and Decrease in Liabilities and Capital is debited

To understand this let us assume that you have started a business on 01/04/2021 with Rs. 5,00,000/- in cash through your firm M/S Myself. This transaction is analysed and recorded as follows:

Transaction	Analysis	Nature of account	Rule	Entry
Introduction of Rs. 5,00,000/- in the cash by the owner in the business	Increase of cash balance by Rs. 5,00,000/-	Asset	Debit increase in assets	Debit cash account
	Increase of liabilities (Capital) by Rs. 5,00,000/-	Capital	Credit increase in capital	Credit capital account

The Journal entry for this is going to be

Date	Particulars	L.F	Dr (Rs.)	Cr. (Rs.)
01/04/2021	Cash A/C		5,00,000/-	
	To Capital A/c			5,00,000/-

Now you are able to understand how to record transactions for change in assets and liabilities. Now we are going to discuss how to analyse and record changes in capital account.

The capital account increases due to introduction of new capita, revenue and income earned. It decreases due to with drawl of goods, cash and other assets for personal use and expenses incurred.

Recording all these transactions directly into capital account will make it cumbersome and unwieldy. In practice all the revenue and expenses are taken to profit & loss account and the net effect is transferred to capital account. In the same way cumulative effect of drawings is recorded in capital account at the end of the accounting period.

For recording the items of revenue and expenditure temporary capital accounts are created.

The reason behind calling these accounts as temporary capital account is that each of these accounts starts with a zero balance at the beginning of the accounting period and at the end of the accounting period these accounts are closed and their balance are transferred to profit and loss account and the net balance (net profit / net loss) is transferred to capital account. The temporary capital accounts include:

(i) Revenue Account (including other income and gains)

(ii) Expense Account (including losses)

(iii) Drawing Account

Increase in revenue leads to increase in capital therefore revenue earned is credited to revenue account.

For example Sales of Rs. 10,000/- in cash, in this case cash account would be

debited by Rs. 10,000/- and Sales A/c would be credited by Rs. 10,000/-.

Expenses decrease capital and decrease in capital is debited therefore expenses incurred are debited to expense account.

For example Purchase of Rs. 9,000/- in cash, in this case Purchase A/c would be debited by Rs. 9,000/- and cash account would be credited by Rs. 9,000/-.

In nutshell if

	Asset	Liability	Capital	Drawings	Expense	Revenue
Increase	Dr	Cr	Cr	Dr	Dr	Cr
Decrease	Cr	Dr	Dr	Cr	Cr	Dr

Illustration 1: Analyse transactions of M/s. Sunil & Co. for the month of March, 2021 on the basis of double entry system by adopting the following approaches:

A) Accounting Equation Approach

B) Traditional Approach

Transactions for the month of March, 2021 were follows:

1. Sunil introduced cash Rs. 40,000.
2. Cash deposited in the City bank Rs. 20,000.
3. Cash loan of Rs. 5,000 taken from Mr. Y.
4. Salaries paid for the month of March, 2021Rs. 3,000 and Rs. 1,000 are still payable for the month of March, 2021.
5. Furniture purchased Rs. 5000.

What conclusions one can draw from the above analysis?

(A) Analysis of Business Transaction: Accounting Equation Approach

Transaction	Analysis	Account Affected & Nature of Account	Rule	Entry
Introduction of Rs. 40,000 cash by the Proprietor	Cash received Investment by owner	Cash –Asset Capital-Capital	Debit increase in asset Credit increase in capital	Debit Cash Credit Capital
Cash deposited in bank Rs. 20,000	Bank balance increases Cash balance decreases	Bank-Asset Cash-Asset	Debit increase in asset Decrease in asset	Debit Bank Credit Cash
Loan from Y	Cash balance	Cash- Asset	Debit	Debit Cash

Rs. 5,000	increases Creates an obligation to repay Y	Y's Loan-Liability	increase in assets Credit increase in liabilities	Credit Y's Loan
Salaries paid Rs. 3,000 and outstanding Rs. 1,000	Salaries for services received Rs. 4,000 Paid Rs. 3,000 Obligation to pay Rs. 1,000	Salary-Temporary capital (Expense) Cash-Asset Salaries outstanding-Liability	Debit increase in expenses Credit decrease in asset Credit increase in liabilities	Debit Salary (Rs. 4,000) Credit Cash (Rs. 3,000) Credit Salaries Outstanding (Rs. 1,000)
Furniture purchased Rs. 5,000	Increases furniture owned Cash decreases	Furniture-Asset Cash-Asset	Debit increase in asset Credit decrease in asset	Debit Furniture Credit Cash

B) Analysis of Business Transaction: Tradition approach

Transaction	Analysis	Account Affected & Nature of Account	Rule	Entry
Introduction of Rs. 40,000 cash by the Proprietor	Cash is received by business Owner has given cash	Cash – Real Capital-Personal	Debit what comes in Credit the giver	Debit Cash Credit Capital
Cash deposited in bank Rs. 20,000	Bank receives cash Cash goes out of business	Bank-Personal Cash- Real	Debit the receiver Credit what goes out	Debit Bank Credit Cash
Loan from Y Rs. 5,000	Business gets cash Y pays cash	Cash-Real Y's loan-Personal	Debit what cones in Credit the giver	Debit Cash Credit Y's Loan

Salaries paid Rs. 3,000 and still payable Rs. 1,000	Cost of services used Rs. 4,000 Cash goes out Rs. 3,000 Still payable or Outstanding for services received Rs. 1,000	Salary- Nominal Cash- Real Salary Outstanding- Personal	Debit all expenses Credit what goes out Credit the giver	Debit Salary (Rs. 4,000) Credit Cash (Rs. 3,000) Credit Salaries Outstanding (Rs. 1,000)
Furniture purchased Rs. 5,000	Furniture is purchased Cash is paid	Furniture – Real Cash- Real	Debit-what comes in Credit-what goes out	Debit Furniture Credit Cash

Illustration 2: Show the classification of the following Accounts under traditional and accounting equation approach:

(a) Building; (b) Purchases; (c) Sales; (d) Bank Deposit; (e) Rent; (f) Rent Outstanding; (g) Cash; (h) Adjusted Purchases; (i) Closing Stock; (j)Investments; (k) Debtors; (l) Sales Tax Payable; (m) Discount Allowed; (n) Bad Debts; (o) Capital; (p) Drawings; (q) Provision for depreciation account; (r) Interest Receivable account; (s) Rent received in advance account; (t) Prepaid salary account; (u) Provision for Bad & doubtful debts account; (y) Stock reserve account; (z) Provision for discount on creditors account.

Nature of Account

S.No.	Title of Account	Traditional Approach	Accounting Equation Approach
(a)	Building	Real	Asset
(b)	Purchases	Real	Asset
(c)	Sales	Nominal (Revenue)	Temporary Capital (Revenue)
(d)	Bank Deposit	Personal	Asset
(e)	Rent	Nominal (Expense)	Temporary Capital (Expense)
(f)	Rent Outstanding	Personal	Liability
(g)	Cash	Real	Asset
(h)	Adjusted Purchases	Nominal (Expense)	Temporary Capital (Expense)
(i)	Closing Stock	Real	Asset
(j)	Investment	Real	Asset

(k)	Debtors	Personal	Asset
(l)	Sales Tax Payable	Personal	Liability
(m)	Discount Allowed	Nominal (Expense)	Temporary Capital (Expense)
(n)	Bad Debts	Nominal (Expense)	Temporary Capital (Expense)
(o)	Capital	Personal	Capital
(p)	Drawings	Personal	Temporary Capital (Drawings)
(q)	Provision for depreciation	Valuation (Real)	Asset
(r)	Interest receivable	Personal	Asset
(s)	Rent received in advance	Personal	Liability
(t)	Prepaid salary	Personal	Valuation (Asset)
(u)	Provision for bad & doubtful debts	Valuation (Personal)	Valuation (Asset)
(v)	Bad debts recovered	Nominal (Gain)	Temporary capital (Gain)
(w)	Depreciation	Nominal (Expense)	Temporary capital (Expense)
(x)	Personal Income Tax	Personal (Drawing)	Temporary capital (Drawings)
(y)	Stock reserve	Valuation (Real)	Valuation (Asset)
(z)	Provision for discount on creditors	Valuation (Personal)	Valuation (Liability)

2.3 JOURNAL

Journal is a historical record of business transaction or events. The word journal comes from theFrench word “Jour” meaning “day”. It is a book of original or prime entry. Journal is a primary bookfor recording the day-to-day transactions in a chronological order i.e., the order in which they occur. The journal is a form of diary for business transactions. This is called the book of first entry since every transaction is recorded firstly in the journal.

JournalEntry

Journal entry means recording the business transactions in the journal. For each transaction, aseparate entry is recorded. Before recording, the transaction is analysed to determine which account is to be debited and which account is to be credited.

The Performa of journal is shown as follows:

JOURNAL

Date	Particulars	L.F.	Debit (Amount)	Credit (Amount)
(1)	(2)	(3)	(4)	(5)

Column1 (Date):The date of the transaction on which it takes place is written in this column.

Column2 (Particulars): In this column, the name of the accounts to the debited is written first, then the names of the accounts to be credited and lastly, the narration (i.e., a brief explanation of transaction) are entered.

Column3(L.F.): L.F stands for ledger folio which means page of the ledger. In this column are entered the page numbers on which the various accounts appear in the ledger.

Column4 (Dr. Amount): In this column, the amount to be debited against the 'Dr.' Account is written along with the nature of currency.

Column5(Cr. Amount):In this column the amount to be credited against the 'Cr.' Account is written along with the nature of currency.

Advantages of Using Journal

Journal is used because of the following advantages:

- A journal contains a permanent record of all the business transactions.
- The journal provides a complete chronological (in order of the time of occurrence) history of all business transactions and the task of later tracing of some transactions is facilitated.
- Complete information relating to one single business transaction is available in one placewith all its aspects.
- The transaction is provided with an explanation technically called a narration.
- Use of the journal reduces the possibility of an error when transactions are first recorded in this book.
- The journal establishes the quality of debits and credits for a transaction and reconciles any problems. If a business purchases a bicycle, it is necessary to decide whether the bicycle represents ordinary goods or machinery. Further any amount paid is debited to bicycle account and credited to cash account.
- The use of journals avoids omission or duplication of transactions or parts of transaction.Without the journal the accountant would be forced

to go to the individual account to enterdebits and credits. Therefore, it is possible for accountant to miss part of a transaction,duplicate all or part of a transaction or incorrectly record debits and credits. Even with theJournal, it is still possible to omit transactions and make other errors. However, the Journal reduces these problems.

- Once a transaction is recorded in the journal, it is not necessary to post it immediately in the ledger accounts. In this, way, the journal allows the delayed posting.

In connection with the journal, the following points are to be remembered:

- For each transaction, the exact accounts should be debited and credited. For that, the two accounts involved must be identified to pass a proper journal entry.
- Sometimes, a journal entry may have more than one debit or more than one credit. This type of journal entry is called compound journal entry. Regardless of how many debits or credits are contained in a compound journal entry, all the debits are entered before any credits are entered. The aggregate amount of debits should be equal to the aggregate amount of credits.
- For a business, journal entries generally extend to several pages. Therefore, the total are cast at the end of each page, against the debit and credit columns, the following words and written in the particular column, which indicates, carried forward (of the amount on the next page)"Total c/f".

The debits and credits totals of the page are then written on the next page in the amount columns; and opposite to that on the left, the following words are written in the particulars column to indicate brought forward (of the amount of the previous page) "Total b/f". This process is repeated on every page and on the last page, "Grand Total" is cast.

2.3.1 Journalizing

Journalizing is the process of recording journal entries in the Journal. It is a systematic act of entering the transaction in a day book in order of their occurrence i.e., date-wise or event-wise. After analysing the business transactions, the following steps in journalising are followed:

i) Find out what accounts are involved in business transaction.

ii) Ascertain what is the nature of accounts involved?

iii) Ascertain the golden rule of debit and credit is applicable for each of the accounts involved.

iv) Find out what account is to be debited which is to be credited.

v) Record the date of transaction in the "Date Column".

vi) Write the name of the account to be debited very near to the left-hand side in the'Particulars Column' along with the word 'Dr' on the same line against the name of theaccount in the 'Particulars Column' and the amount to be debited in the 'Debit Amount column against the name of

the account.

vii) Record the name of the account to be credited in the next line preceded by the word 'To' at a few spaces towards right in the 'Particulars Column' and the amount to be credited in the 'Credit Amount Column' in front of the name of the account.

viii) Record narration (i.e., a brief explanation of the transaction)within brackets in the following line in Particulars Column'.

ix) A thin line is drawn all through the particulars column to separate one Journal entry from the other and it shows that the entry of a transaction has been completed.

Goods Account

Generally, the term goods include every type of property such as Land, Building, Machinery, Furniture, Cloth etc. However, in accountancy its meaning is restricted to only those articles which are purchased by a businessman with an intention to sell it. For example, if a businessman purchased typewriter, it will be goods for him if he deals in typewriter but if he deals in other business say clothes then typewriter will be asset for him and clothes will be goods.

Sub-Division of Goods Accounts

The goods account is not opened in accounting books and it is to be noted goods includes purchases, sales, sales returns, purchases return of goods. However, purchase account, sales account, sales return account and purchase return account are opened in the books of account.

Purchases Account: This is opened for goods purchased on cash and credit.

Sales Account: This account is opened for the goods sold on cash and credit

Purchase Returns Account or Return Outward Account: This account is opened for the goods returned to suppliers.

Sales Returns Account or Return Inward Account: This account is opened for the goods returned bycustomers.

Opening Entry: In case of going concern at the beginning of the new year, new books of accounts are opened and the balances relating to personal and real Accounts appearing in the books at the close of the previous year are brought forward in new books. The entry for this purpose in the books is called opening entry.

The opening entry is passed by debiting all assets and crediting all liabilities including capital. If the amount of capital is not given then this can be found out with the help of the accounting equation:

Assets = Liabilities + Capital

Capital=Assets-Liabilities

2.3.2 Important Considerations For Recording The Business Transactions

1. **Trade Discount:** Trade discount is usually allowed on the list price of the goods. It may be allowed by producer to wholesaler and by wholesaler to retailer for purchase of goods in large quantity. It is not recorded in the books of account and entry is made only with the net amount paid or received, for example, purchased goods of list price Rs. 8,000 at 15% trade discount from X. In this case the following entry will be passed:

		Rs.	Rs.
Purchases Account	Dr.	6,800	
To X			6,800
(Being goods purchased at 15% trade discount Less list price)			

2. **Amount paid or received in full settlement or cash discount:** Cash discount is a concessionallowed by seller to buyer to encourage him to make early cash payment. It is a NominalAccount. The person who allows discount, treat it as an expenses and debits is his books andit is called discount allowed and the person who receives discount, treat as an income and it is called discount received and credits in his books of account "Discount Received Account."For example, X owes Rs. 6,000 to Y. He pays Rs. 5,950 in full settlement against the amount due. In the books of X the journal entry will be:

		Rs.	Rs.
Y	Dr.	6,000	
To Cash Account			5,950
To Discount Received account			50
(Being Cash paid and discount received)			

In the books of Y		Rs.	Rs.
Cash Account	Dr.		5,950
Discount Allowed Account	Dr.		50
To X			6,000
(Being cash received and discount allowed)			

3. **Goods distributed as free samples:** Sometimes business distributes goods as free samples for the purpose of advertisement. In this case Advertisement Account is debited and Purchases Accounts is credited. For example, goods costing Rs.8000 were distributed as free sample. To record these transactions following entry will be passed

		Rs.	Rs.
Advertisement Account	Dr.	8,000	
To Purchases Account			8,000

4. **Interest on capital:** Interest paid on capital is an expense. Therefore, interest account should be debited. On the other hand, the capital of the business is increased so, the capital account should be credited. The entry will be as follows:

   Interest on Capital Account Dr.

   To Capital Account

5. **Interest charged on Drawings:** If the interest is charged on drawings, then it will be an increase in the income of business, so interest on drawings will be credited. On the other hand, therewill be increase in Drawings or decrease in Capital. So, Drawings Account will be debited. To record this, following entry will be passed:

   Drawing Account or Dr.

   Capital Account Dr.

   To Interest on Drawing Account

6. **Depreciation charged on Fixed Assets:** Depreciation is the gradual, permanent decrease in the value of assets due to wear and tear and many other causes. Depreciation is an expense so the following entry will be passed:

   DepreciationAccount Dr.

   To Asset Account

7. **Bad Debts:** Sometimes a debtor of business fails to pay the amount due from him. Reasons may be many e.g., he may become insolvent or he may die. Such irrecoverable amount is a loss to the business. To record this following entry will be passed:

   BadDebts Account Dr.

   To Debtor's Account

8. **Bad Debts Recovered:** When any amount becomes irrecoverable from any costumer ordebtor his account is closed in the books. If in future any amount is recovered from him thenhis personal account will not be credited because that does not exist in the books. So, thefollowingentry is passed:

   CashAccount Dr.

   To Bad Debts Recovered Account

9. **Purchase and Sale of investment:** When business has some surplus money it may invest this amount in shares, debentures or other types of securities. When these securities are purchased, these are recorded at the purchase price paid. At the time of sale of investmentthe sale price of an investment is recorded in the books of accounts. The following entry is passed to record the purchase of investment:

   InvestmentAccount Dr.

   To Cash Account

In case of sale of these securities the entry will be:CashAccount Dr.

To Investment Account

10. **Loss of Goods by Fire/Accident/theft:** A business may suffer loss of goods on account of fire, theft or accident. It is a business loss and a nominal account. It also reduces the goods at cost price, and increases the loss/expenses of the business. The entry will be passed as:

Loss by fire/Accident/theft Account Dr (for loss)

InsuranceCompanyAccount Dr.(forinsuranceclaimadmitted)

To Purchases Account

11. **Income Tax Paid:** Income Tax paid should be debited to Capital Account or Drawings Account and credited to cash Account in case of sole proprietorship and partnership firms. The reason behind this is that income tax is a personal expense for the sole trader and partners because it is paid on income of proprietor. The entry will be as follows:

CapitalAccount Dr.

DrawingAccount Dr.

To Cash Account

12. **Bank Charges:** Bank provides various services to their customers. Bank deducts some chargesby debiting the account of customers. It is an expense for the business. To record this following entry will be passed in the books of businessman/customer:

Bank Charges Account Dr.

To Bank Account

13. **Drawings Account:** It is a personal account of the proprietor. When the businessman withdraws cash or goods form the business for his personal/domestic use it is called as‘drawings’. Drawings reduce the capital as well as goods/cash balance of the business. The journal entry is:

DrawingsAccount Dr.

ToCashAccount

To Purchases Account

14. **Personal expenses of the proprietor:** When the private expenses such as life insurances premium, income tax, home telephone bill, tuition fees of the son of the proprietor etc. are paid out of the cash or bank account of business it should be debited to the Drawing Account of the proprietor. The journal entry is:

Capital/ Drawings Account Dr.

To Cash/Bank

15. **Sale of Asset/Property:** When the asset of a business is sold, there may be a profit or loss on its sale. It should be noted carefully that sales account is never credited on the sale of asset. The journal entry is:

a. In case there is a profit on sale of Property/Assets

Cash/Bank Account Dr.

To Asset/Property Account

To Profit on sale of Asset Account

b. In case of a loss on sale of asset

Cash/Bank Account Dr.

Loss on sale of Asset Account Dr.

To Asset Account

16. **Amount paid or received on behalf of customer:**

a. When the business entity pays the amount on behalf of old reputed customers such as carriage in anticipation of recovering the same later on, carriage account should not be opened because carriage is not the expense of the seller. It should be debited/charged to customer's Personal account. The journal entry is:

Customer/Debtor'sAccount Dr.

To Cash/Bank Account

b. When the business entity receives the amount on behalf of customers from the thirdparty as mutually settled between the third party and the customer, the account of the third party/person making the payment should not be opened in the books of the receiving entity. The journal entry in the books of the entity is:

Cash/BankAccount Dr.

To Customer/Debtor's Account

17. **Amount paid on behalf of creditors:** When the creditors/supplier instructs the business entity to make payment on their behalf, the amount so paid should be debited to creditors account and liability of the business will decrease accordingly. The journal entry is:

Suppliers/Creditors Account Dr.

To Cash/Bank Account

18. The events affecting business but they do not involve any transfer/exchange of money for the time being, they would not be recorded in the financial books. Examples of them are:

a. On 1stJanuary 2006 placed an order to Geeta& Sons for the supply of goods worth Rs.1,00,000.

b. Babanjot,a B.Com. graduate has been appointed Sales Assistant on a salary of Rs.5,000 p.m. on Jan 2006.

c. Raman, a proprietor contracted with Bahia Builders Ltd. For the renovation of the building at an estimated cost of Rs.5,00,000.

d. A shop in Adalt Bazar Patiala contracted to be taken on a rent@Rs.4,000pm.

19. **Paid wages/installation charges for erection of machinery:** Wages and installation charges are the expenses of nominal nature. But for erection of machinery no separate account should be opened for such expenses because these expenses are of capital nature and it will be merged/debited to the cost of assets i.e. machinery. The journal entry is:

MachineryAccount Dr.

ToCash/BankAccount

(Being wages/installation charges paid for the erection of machinery)

Illustration 3: Journalise the following transactions of M/s Ramesh and Co. for the month of March, 2021: Balances on March 1, 2021 (a) Cash- Rs. 14,000 (b) Bank- Rs. 40,000 (c) Stock- Rs. 30,000 (d) Furniture – Rs. 10,000 (e) Building- Rs. 80,000 (f) Debtors: A – Rs. 6,000. B- Rs10,000 (g) Bank Loan- Rs. 14,000 (h) Creditors: X- Rs. 14,000. Y- Rs. 16,000.

Transactions during the month of March, 2001 were as follows:

2nd March Received Rs. 2,800 cash from Mr. A in full and final settlement.

6thMarch Purchased goods of the list price Rs. 10,000 at 10% discount on credit from Mr. Z.

8thMarch Sold goods to C on credit Rs. 8,000.

11th March C pays Rs. 7,200 after getting 10% discount for prompt payment.

15th March Salaries paid in cash Rs. 2,000.

18th March Interest on bank loan Rs. 700 debited to the current account of the business enterprise.

20th March Goods costing Rs. 1,000 distributed as free samples.

25th March Cash withdrawn by Ramesh for personal use Rs. 2,000.

30th March paid Rs. 6,000 to X in full and final settlement of his account.

31st March Cash sales at list price Rs. 5,000. Trade discount allowed Rs. 500.

Journal

Date	Particulars	L.F.	Dr.	Cr.
1-3-21	Cash A/c		14000	
	Bank A/c		40000	
	Debtors A/c		16000	
	Stock a/c		30000	
	Furniture A/c		10000	
	Building A/c		80000	
	To Creditors A/c			
	To Bank Loan A/c			30000
	To Capital A/c			14000
	(Being balances of assets and liabilities in the beginning of the period and excess of assets over liabilities taken as capital)			146000
2-3-21	Cash A/c		5600	
	Discount Allowed A/c		400	

	To A (Being cash received from Mr. A Rs. 5600 and difference between amount due and final settlement treated as cash discount)			6000
2-3-21	Purchases A/c To Z (Being goods purchased for Rs. 18,000 i.e.Rs. 20,000 less 10% trade discount)		18000	18000
6-3-21	C To Sales A/c (Being goods sold on credit to Mr. C)		16000	16000
11-3-21	Cash A/c Discount Allowed A/c To C (Being payment made of full amount by C and he gets 10% cash discount)		14400 1600	16000
15-3-21	Salaries A/c To Cash A/c (Being cash payment of salaries		4000	4000
18-3-21	Interest on Loan A/c To Bank A/c (Being interest charged on loan by bank)		1400	1400
20-3-21	Sample A/c To Purchases A/c (Being cost of free sample distributed)		2000	2000
25-3-21	Drawing A/c To Cash A/c (Being money withdrawn for personal use)		4000	4000
30-3-21	X To Cash A/c To Discount Received A/c (Being payment to Mr. X Rs. 12,000 in final settlement and difference treated as discount received)		14000	12000 2000
31-3-21	Cash A/c To Sales A/c (Being cash sales at list price less 10%)		9000	9000
	Total:		280400	280400

Cost of samples distributed to promote sales is a sales promotion expense and therefore, debited to samples account. Alternatively, it can be debited to sales promotion expense account. As it reduces the goods purchased for resale, cost of samples distributed is credited to (or subtracted from) purchases account.

2.4 LEDGER

Meaning: After recording the business transactions in the Journal or special purpose Subsidiary Books, the next step is to transfer the entries to the respective accounts in the Ledger. Ledger is a book where all the transactions related to a particular account are collected at one place.

Definition: The Ledger is the main or Principal book of accounts in which all the business transactions would ultimately find their place under various

accounts in a duly classified form.

Utility of Leader

To know the collective effect of all the transactions pertaining to one particular account.

By this classification, we are able to know the following-

- It provides complete information about all accounts.
- It provides position of Assets and Liabilities
- It facilitates to prepare Trial Balance.

Important: Ledger is also called the Principal Book of Accounts

Performa for Ledger

Each ledger account is divided into two equal parts.

Left Hand Slide ⟶ Debit side (Dr.)

RightHandSide ⟶ Creditside(Cr.)

NameoftheAccount

Dr. Cr.

Date	*Particulars*	*J.F*	*Amount*	*Date*	*Particulars*	*J.F*	*Amount*

2.4.1 Posting in the Ledger

This will be dealt separately from Journal Entries and each Subsidiary Book.

Case-I: Posting from Journal Entries

- If an account is debited in the journal entry, the posting in the ledger should be made on the debit side of that particular account. In the particulars column the name of the other account (which has been credited in the Journal entry) should be writen for reference.
- For the Accredited in the Journal entry, the posting in the ledger should be made on the credit side of that particular *A/c*.I n the particulars column, theame of the other account that has been debited (in the Journalentry) is written for reference.

Important

- 'To' is written before the A/c s which appear on the debit side of Ledger
- "By" is written before the A/cs appearing on the credit side Ledger.
- Use of these words 'To' and 'By' is optional.

Illustration 4:Simple Journal Entry

On1st August2021goods are sold for cash Rs.12.000.

Solution:

JournalEntry

Date	*Particulars*	*L.F*	*Dr.(Rs.)*	*Cr(Rs.)*
1st Aug, 2021	CashA/cDr. To SalesA/c {Forcashsales)		12.000	12.000

LedgeA/c

CashA/c(extract)

Dr. Cr.

Date	*Particulars*	*J.F*	*(Rs.)*	*Date*	*Particulars*	*J.F*	*(Rs.)*
1st Aug, 2021	ToSalesA/c		12000				

SalesA/c(extract)

Dr. Cr.

Date	*Particulars*	*J.F*	*(Rs.)*	*Date*	*Particulars*	*J.F*	*(Rs.)*
				1st Aug, 2021	ToCashA/c		12000

Illustration 5: Compound Journal Entry

Received Rs.14.000 in full settlement of a debt of Rs.15,000 from RamonAug8.2021

Solution:

JournalEntry

Date	*Particulars*		*L.F*	*Dr.**(Rs.)***	*Cr.(Rs.)*
8th August, 2021	Cash A/c	Dr.		14,000	
	DiscountAllowedA/C	Dr.		1,000	
	ToRam				15,000
	{Cashreceivedanddiscountallowed)				

Ledger

CashAccount

Dr. Cr.

Date	*Particulars*	*J.F.*	*Rs.*	*Date*	*Particulars*	*J.F.*	*Rs.*
8th August, 2021	ToRam		14.000				

Discount Allowed Account

Date	*Particulars*	*J.F.*	*Rs.*	*Date*	*Particulars*	*J.F.*	*Rs.*
8th August, 2021	ToRam		1.000				

Ram's Account

Date	*Particulars*	*J.F.*	*Rs.*	*Date*	*Particulars*	*J.F.*	*Rs.*
				8th August, 2021	By cash a/c By Discount allowed a/c		14000 1000

2.4.2 Balancing of Ledger Accounts

Balancing of an account means to make the total of amounts columns appearing on debit and credit side of an account equal to each other. If the total of amount column on debit side is more than the total of the amount column on credit side, it is said that the account has a debit balance. The

balance is termed as credit balance if total of amount column on credit side is more than the total of amount column on debit side. Balancing is done by writing balance carried down (c/d) on the shorter side to make total of debit and credit side equal. The same balance is written as balance brought down (b/d) on the opposite side as follows:

Dr.		Title of Account			Cr.
1-3-01	To……	4,000	20-3-01	By……	8,000
4-3-01	To……	3,000	25-3-01	By……	7,000
6-3-01	To……	5,000	31-3-01	By Balance c/d	5,000
18-3-01	To……	8,000			
		20,000			20,000
1-4-01	By Balance b/d	5,000			

Accounts relating to assets, liabilities, revaluation of assets and liabilities, and capital are balanced at the end of accounting period. Temporary Capital Accounts relating to expenses, revenue, gains and drawings are not balanced. Nominal accounts representing expenses, revenue and incomes are transferred at the end of the year to trading and profit and loss account. Drawing account is closed by transferring its balance to capital account. Stock account showing stock in the beginning (called opening stock) and purchases account, although real account by nature, are not balanced. These are transferred to trading account.

Illustration 6: Name the accounts prepared in Illustration 3 which do not require balancing. Balance remaining accounts clearly indicating the amount and nature of balance (debit or credit) is appearing in those accounts.

Stock A/c, Discount Allowed A/c, Purchases A/c. Sales A/c, Interest on loan A/c, Samples A/c, Drawing A/c and Discount Received A/c are closed at the end of the period and therefore, not balanced. Other accounts which are balanced, appear as follows in the ledger:

Dr.		**Cash Account**			Cr.
1-3-21	To Balance b/d	14,000	15-3-21	By Salaries A/c	4,000
2-3-21	To A	5,600	25-3-21	By Drawing A/c	4,000
11-3-21	To C	14,400	30-3-21	By X	12,000
31-3-21	To Sales A/c	9,000	31-3-21	By Balance c/d	23,000
		43,000			43,000
1-4-21	To Balance b/d	23,000			

Dr.		Bank Account			Cr.
1-3-21	To Balance b/d	40,000	18-3-21	By Interest on Loan A/c	1400
			31-3-21	By Balance c/d	38,600
		40000			40000
1-4-21	By Balance b/d	38600			

Dr.		A's Account			Cr.
1-3-21	To Balance b/d	6,000	12-3-21	By Sundries	6,000
		6,000			6,000

Dr.		**B's Account**			Cr.
1-3-21	To Balance b/d	10,000	31-3-21	By Balance c/d	10,000
		10,000			10,000
1-4-21	To Balance b/d	10,000			

Dr.		Furniture Account			Cr.
1-3-21	To Balance b/d	10,000	31-3-21	By Balance c/d	10,000
		10,000			10,000
1-4-21	To Balance b/d	10,000			

Dr.		Building Account			Cr.
1-3-21	To Balance b/d	80,000	31-3-21	By Balance c/d	80,000
		80,000			80,000
1-4-21	To Balance b/d	80,000			

Dr.		Bank Loan Account			Cr.
31-3-21	To Balance b/d	14,000	1-3-21	By Balance c/d	14,000
		14,000	1-4-21	To Balance b/d	14,000

Dr.		X's Account			Cr.
30-3-21	To Sundries	14,000	1-3-21	By Balance b/d	14,000
		14,000			14,000

Dr.		Y's Account			Cr.
31-3-21	To Balance c/d	16,000	1-3-21	By Balance b/d	16,000
		16,000	1-4-21	To Balance b/d	16,000

Dr.		Z's Account			Cr.
31-3-21	To Balance b/d	18,000	1-3-21	To Purchases A/c	18,000
		18,000	1-4-21	By Balance b/d	18,000

Dr.		C			Cr.
8-3-21	To Sales A/c	16,000	11-3-21	By Sundries	16,000
		16,000			16,000

Summary of Balances

Accounts Title	Balance Amount (Rs.)	Nature of Balance
Cash	23000	Debit
Bank	38600	Debit
A	Nil	-
B	10,000	Debit
Furniture	10,000	Debit
Building	80,000	Debit
Bank Loan	14,000	Credit
X	Nil	-
Y	16,000	Credit
Z	18,000	Credit
C	Nil	-

2.5 SUMMARY

An accounting process is a complete sequence of accounting procedures which are repeated in the same order during each accounting period. Accounting process involves six steps or stages i.e. identification of transactions, recording the transaction, classifying, summarising, analysis and interpretation and reporting of financial information. In accounting, all the transactions are recorded on the basis of evidence/document which are mainly three–(i)payment voucher;(ii)receipt voucher; and(iii)transfer voucher. Recording the transaction is the first step in the process of accounting which is performed in the book called 'Journal'. Journal is a primary book for recording the day to daytransactions in a chronological order, i.e., the order in which they occur. The process of recordingjournal entries in the journal is called journalising. For the journalising, all the accounts are classified into three categories namely personal account; real account; and nominal account.

2.6 SELF ASSESSMENT QUESTIONS

Question1:

Journalise the following transactions, post them into Ledger, balance the accounts andprepare aTrial Balance:

2017		(₹)
March 1	Haldiram& Sons commenced business with cash	80,000
2	Purchased goods for cash	36,000
3	Machinery purchased for cash	4,000
4	Purchased goods from :	
	Rahul	22,000
	Dilip	30,000
6	Returned goods to Rahul	4,000
8	Paid to Rahul, in full settlement of his account	17,500
10	Sold goods to Mahesh Chand & Co. for ₹ 32,000 at 5% trade discount	
13	Received cash from Mahesh Chand & Co.	19,800
	Discount allowed	200
15	Paid cash to Dilip	14,850
	Discount received	150
20	Sold goods for cash	25,000
24	Sold goods for cash to Sudhir Ltd.	18,000
25	Paid for Rent	1,500
26	Received for Commission	2,000
28	Withdrew by Proprietor for his personal use	5,000
28	Purchased a fan for Proprietor's house	1,200

Question 2:

Following balances appeared in the books of Ram &Shyam on January 1, 2017:−Assets: Cash in hand ₹ 30,000; Stock ₹ 36,000; Lal Chand ₹ 7,600; MukeshKhanna₹16,200;Furniture₹ 8,000.

Liabilities: Ghanshyam ₹ 6,000; Vinod ₹ 8,000. Following transactions took place during Jan. 2017:−

2017	
Jan. 2	Purchased Typewriter for ₹ 7,500.
4	Sold goods for Cash of the list price of ₹ 25,000 at 20% trade discount and 5% Cash discount.
6	Sold goods to Gopal Seth for ₹ 10,000.
8	Gopal Seth returned goods for ₹ 1,500.
12	Purchased goods from Arun ₹ 12,000; and from Varun ₹ 15,000.
13	Settled Arun's account in full after deducting 5% for cash discount.
14	Paid cash to Ghanshyam in full settlement of his account.
16	Received ₹ 7,500 from Lal Chand in full settlement of his account.
17	Purchased a Scooter for office use ₹ 18,000.
20	Sold goods for cash ₹ 20,000.
22	Received from Gopal Seth ₹ 4,850 and discount allowed ₹ 150.
27	Paid for Wages ₹ 7,000 and Salaries ₹ 3,000.
28	Withdrew goods for ₹ 2,000 and Cash ₹ 1,500 for private use.
29	Paid for Life Insurance Premium of the Proprietor ₹ 1,600.

Journalise the above transactions, post them into Ledger, balance themand prepare aTrialBalance.

Question3:

Enter the following transactions in a Double Column Cash Book and Journal Proper andpostthem into Ledger:

May 1	Balance of Cash in Hand ₹ 12,400; Bank Overdraft ₹ 36,000.
3	Direct deposit by Mr. Ganesh in our bank account ₹ 10,000. Discount allowed ₹200.
5	Issued a cheque of ₹ 7,700 to Mr. Suresh in full settlement of his account of ₹8,000.
6	Received a cheque from X for ₹ 12,000. Discount allowed ₹ 500. This cheque was deposited into bank on 7th May.
8	Received Cash ₹ 22,000 and cheque of ₹ 8,000 for cash sale.
12	Cash sale ₹ 70,000 of which ₹ 55,000 banked.
15	Cheque received on 8th May endorsed to Mr. Sunil. Discount received ₹ 150.
20	Discounted a B/R of ₹ 10,000 at 1% through bank.
24	Cheque received from X dishonoured, Bank debits ₹ 20 in respect of bank charges.
25	Purchased goods for ₹ 50,000 at a trade discount of 10%. Payment was made incash.
26	Withdrew from bank ₹ 10,000 for office use and ₹ 2,000 for personal use.
31	Interest debited by Bank ₹ 4,500.

UNIT 3 FINANCIAL STATEMENTS

Learning Objectives

After reading this chapter, you will be able to:

- Explain the meaning and objectives of financial statements of a business entity
- Understand the basic concepts of a Profit & Loss account
- Classify income and expense items
- Understand the structure and components of a balance sheet
- Classify the various assets, liabilities and capital accounts in a balance sheet
- Understand the basic principles of assets valuation
- Appreciate the concept of a balance sheet equation
- Appreciate the linkage between profit and loss account and balance sheet

Structure

3.1 Introduction to Financial Statements

3.2 Objectives of Financial Statements

3.3 Income determination: Basic concepts

3.4 Revenue and Expense

3.5 Profit and Loss

3.6 Income Statement

3.7 Preparing a Trading and Profit and Loss Account

3.8 Balance Sheet

3.9 Balance Sheet contents and classification

- 3.9.1 Dual Aspect Concept
- 3.9.2 Current Assets
- 3.9.3 Fixed Assets
- 3.9.4 Intangible Assets
- 3.9.5 Long Term Liabilities
- 3.9.6 Capital or Owner's Equity

3.10 Relationship between Income Statement and Position Statement

3.11 Summary

3.12 Key Words

3.13 Self-assessment Questions/Exercises

3.14 Further Readings

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3.1 INTRODUCTION TO FINANCIAL STATEMENTS

The process of accounting aims at providing the financial information about the business entity to the users with the help of financial statements. Financial statements are the formal end reports that summarise the business operations and transactions conducted in a financial year. These statements are prepared as per the accounting principles to generate systematic and consistent results. They are useful indicators of the financial health of a business entity at a particular point of time. The various users of financial statements include owners and external parties such as investors, tax authorities, government, employees, etc. It is vital to present the financial statements in a proper form with suitable contents so that the shareholders and other users of financial statements can easily understand and use them in their economic decisions in a meaningful way.

There are three main financial statements of a business entity: the **Balance Sheet** (position statement) as at the end of accounting period, the **Statement of Profit & Loss** (income statement) and the **Cash Flow Statement**.

3.2 OBJECTIVES OF FINANCIAL STATEMENTS

The financial statements are prepared with the purpose to determine the financial standing of a business entity by measuring three main variables: profitability, liquidity, and solvency.

- **Profitability** is the ability of a business to make profit. After paying all the business expenses out of the sales revenue for a particular accounting period, is the entity still able to make a profit?
- **Liquidity** is the ability of a business to pay current obligations without disrupting normal operations. It is the ability to pay regular bills without having to sell off assets needed to operate the business. In short, being liquid means having enough cash to pay the bills.
- **Solvency** is the ability of a business to pay all its debts if the business were liquidated, or sold out. A solvent business must have more assets than it has debt.

These variables are shown in the revenue generated by business (profit-and-loss statement), the movement of cash in various business activities and balance cash available (cash-flow statement), and the net worth of the business (balance sheet).

3.3 INCOME DETERMINATION: BASIC CONCEPTS

To be able to understand the income statement of a business, the basic concepts of revenue recognition and income measurement must be clearly

understood. But before that, one must be able to distinguish between capital and revenue items. The revenue items form part of the income statement whereas the capital items are shown in the balance sheet. These basic concepts have been discussed as follows:

3.3.1 EXPENDITURE

Expenditure represents any payment or outlay made for the purposes of business. The expenditures are incurred with a view to provide benefits to the business. Such benefit may extend up to one accounting year or more than one year. If the benefit of expenditure extends up to one accounting period, it is termed as **revenue expenditure**. Revenue expenditure is the outflow of funds to meet the running expenses of a business and it will benefit the business during the current period only. It is incurred to carry on the normal course of business or for the repairs and maintenance of the capital assets. In other words, revenue expenditure is incurred to maintain the earning capacity of business. For example, salaries, rent, routine repairs of machinery, interest paid on loan, etc. are all revenue expenditures as they will only benefit the current accounting period. Also, revenue expenditures are of a recurring nature. Revenue expenditures form part of the Income Statement and are also referred to as **expenses** recognised during an accounting period.

If, however, the benefit of certain expenditure extends for more than one accounting period, it is termed as **capital expenditure**. For example, payment to acquire machinery for use in the business. Machinery acquired in the current accounting period will give benefits for many accounting periods to come. Hence, it will be treated as a capital expenditure that affects the balance sheet by an increase in the fixed assets. In simple words, capital expenditure is incurred to increase the earning capacity of a business and is of a non-recurring nature. Common examples of capital expenditure can be payment to acquire fixed assets and/or to make additions/extensions in the fixed assets to increase their useful life.

3.3.2 Receipts

A similar distinction of capital and revenue nature is made in case of receipts of the business. A receipt of money is treated as a **capital receipt** when the contribution is made by the owners towards the capital of the business (example: equity share capital) or, a contribution towards the capital is made by an outsider to the business (example: debentures, long term loan) or when a fixed asset is sold. Capital receipts do not usually have any effect on the profits earned or losses incurred during an accounting year as they are not shown in the Income Statement (P&L A/c). Capital receipts have an impact on the balance sheet.

Next, a receipt is considered as a **revenue receipt** when it is received from sale of goods or services, fee received for rendering technical services, or any interest/dividend earned on investments made by business, or any receipt from business activities done in the normal course during an accounting period. Revenue receipts are shown in the Income statement. They are set off

against the expenses in order to ascertain the profit or loss for the accounting period.

3.3.3 Revenue Recognition

Now that we have learnt about revenue receipts and expenditure, the next question that arises is, when should the revenue and expense be recognised in the books of accounts? Should we record the revenue when the transaction is made or when the cash is received or paid? The answer lies in the fundamental accounting concept of **accrual basis** and the **revenue realisation** principle.

The **accrual basis** of accounting states that revenues should be recorded when they are earned or accrued, and not when they are received in cash. Similarly, expenses should be recorded when they are incurred, and not when they are paid in cash. For example, assume RT Ltd. made a sale of goods on 12-06-2019 to a customer on credit. The cash was received on 25-08-2019. Hence, under accrual accounting, the revenue from sale will be recorded on 12-06-2019 and not on 25-08-2019.Later, when the cash is received; no revenue is recorded because it has already been recorded on the day of sale. In simple terms, accrual basis requires income and expense to be recorded in the accounting period to which they relate and not on a cash basis. Taking another example, if any advance salary is paid to the employee, it will be debited as an expense in the Profit and loss account in the accounting period to which it belongs and not in the period in which it is paid. However, advance salary paid will be shown as a current asset in the Balance sheet of the accounting year in which it is paid.

Realisation principle, on the other hand, is the point of recognising the revenue. It states that the revenue should be recognized only to the extent to which it is certainly realizable. Therefore, just receiving an order of goods or services from the customer won't make it eligible to be recognized as revenue. The reasonable certainty of realizing the revenue will come only when the goods or services ordered are actually supplied to the customer and an invoice is created for the same. This concept ensures that income unearned or unrealized will not be considered as revenue. Further, realisation principle also enables the recognition of costs, incurred in making available such goods or services, as expense. Thus, the realisation principle facilitates the process of income measurement by recognising revenues and also the expenses incurred with respect to such revenues. This also implies, if costs are incurred in producing the goods, such costs are not considered as expenses unless sales are made.

3.3.4 Measurement of Income

Income is nothing but the excess of amount the business entity has earned from its operations over what they have invested into it over its lifetime. However, as per the **going concern concept** the business is expected to run its operations for an indefinite period of time. Therefore, it is impractical to wait till the winding up of business to measure the net income earned by it over its lifetime. There comes the concept of **accounting period.**

Accountants choose some convenient segment of time, such as a calendar year or quarter of a year, to collect, summarise and report all information on material changes in the owners' equity (retained earnings) during that period. This period is usually one year, which could be a calendar year i.e. 1st January to 31st December or it could be a fiscal year, like in India it is 1st April to 31st March. The business organizations have the freedom to choose their own accounting year. However, generally, as a convention, most business firms tend to have a uniform accounting period for easier comparison of results.

The accountants measure the income of an accounting period by recognizing the revenue and expense of that particular accounting period based on accounting principles of realisation and accrual. Therefore, accounting period facilitates a practical system of valuation and measurement. Accounting periods are bounded by balance sheets at the beginning and at the end of the period. Operations during the period are summarised by income statements.

3.3.5 Matching Concept

The determination of profit earned or loss incurred by a business during a particular accounting period requires deduction of the expenses from the revenue relating to that period. The matching concept emphasises exactly on this aspect. It is an accounting principle that states that expenses incurred in an accounting period should be matched with the revenues of that period. It implies that both the revenues and the expenses incurred to earn these revenues must be recognised in the same accounting period. Matching concept ensures that the profit or loss of an accounting period is not over or under-stated.

As previously discussed, revenue is recognised when a sale is made or service is rendered, not when cash is received. Similarly, an expense is recognised when an asset or service has been used to generate revenue, and not when the cash is paid. It is worth noting that, only when a cost is recognised or **accrues** during an accounting period, it becomes an expense. Therefore, cost is not a synonym for expense. Only those costs that have expired during an accounting period are treated as expenses. For example, each year's depreciation is an expired cost of an asset which is treated as an expense during the accounting period in which the asset is used. Similarly in a trading account, sales revenue is matched with its **cost of goods sold** to ascertain the gross profit. This implies, we should only consider the cost of goods that have been sold during that year, and not the cost of all the goods purchased or produced during that period. For this purpose, the cost of unsold goods should be deducted from the cost of the goods produced or purchased. The balance amount is called as **closing inventory** or closing stock and shown in the trading account.

Other examples of expenses include salaries, rent, insurance, interest on loan etc. These are recognised in the accounting period to which they belong irrespective of the actual payment.

3.4 REVENUE AND EXPENSE

Let us now learn, what constitutes revenue and expense during an accounting period. Moreover, we shall also try to answer the following questions. Does a business only earn revenue from sales? Are there any other sources of income for a business entity? How are expenses classified in a Trading and P&L Account? Later we will study how these revenues and expenses are shown in an Income Statement in order to determine the profit or loss.

3.4.1 Revenue

Revenue is simply described as the income generated by a business from the sale of goods or provision of services during an accounting period. Revenue is also commonly referred to as the 'sales revenue' or 'gross revenue'. However, there are certain activities which are incidental to the main operations of the business. The revenue that accrues from such non-operating activities is known as **non-operating revenue.** Examples include dividend income from shares held in other companies, interest on investments, rental income, gain on sale of fixed asset etc.

3.4.2 Expense

Expenses refer to the costs incurred by a business firm to generate revenue during an accounting period. It is a **revenue expenditure** incurred for running the business operations and its benefit is only limited to the current period. Expenses are generally, of a recurring nature such as salaries, rent, interest etc. Moreover, capital expenditure such as purchase of a fixed asset is not treated as an expense as the benefit of a fixed asset continues for more than one accounting period. As already discussed, a cost becomes an expense when it is recognised. The recognition of expense occurs at a point where the corresponding revenue is realised. Let's take few examples to explain it better.

i. Rent of the office building due for the current period is an expense of the current period, even if the actual payment of rent is made during the next accounting period. Such payments that become due during the current period but are actually paid in the subsequent accounting period are called as **outstanding expense**.

ii. **Prepaid** rent related to the next accounting period, paid during the current period is not an expense of the current accounting period. It will be recognised as an expense in the next accounting period when it becomes due.

iii. Inventory is treated as an expense in the accounting period during which it is sold. Thus, the remaining unsold inventory or closing stock is not treated as an expense because it did not generate revenue during the current accounting period. It will, however, be treated as an expense in the year in which such inventory is sold.

In other words, an expense is that part of the cost that has expired and been used up by activities directed at generating revenue. Therefore, all expenses are costs, but all costs are not expenses.

Expenses can be in the form of payments due in respect of routine business activities (e.g. wages, salaries, rent etc.) or an expired portion of an asset (e.g. depreciation, amortization), or a decrease in owners' equity (loss on sale of an asset, bad debts etc.).There are two important classifications of expenses:

i. Direct and Indirect expenses

ii. Operating and non-operating expenses

Direct and Indirect Expenses

'Direct' as the name suggests, are those expenses which are directly related and allocated to the core business operations. Mainly, these are the expenses involved in purchases of inventory and manufacturing/production of goods or services. Direct expenses are a part of the cost of goods sold by a business entity. They are debited in the trading account. Examples of direct expenses include carriage inwards, wages of factory workers, fuel charges, electricity and water charges of the factory, freight inwards, etc. Direct expenses may differ for different types of companies such as manufacturing, trading, services, financial etc.

On the other hand, indirect expenses are not directly related and allocated to the core business operations of a firm such as production. Indirect expenses are incurred to run the business operations smoothly. They are not directly involved in the revenue-generating activities. All those expenses recognised during an accounting period which cannot be classified as direct expense, will be treated as indirect expense. Indirect expenses are debited in the profit and loss account. Examples of indirect expenses include rent of building, salaries to employees, marketing expenses, legal charges, fire insurance premium, interest on loan, depreciation, printing charges, loss on sale of a fixed asset, bad debts etc.

Operating and Non-operating expenses

Operating expenses are the expenses incurred for running the business operations but are not directly related to the core activities of production or trading. Operating expenses are usually connected with generating sales. The common examples of operating expenses include administrative expenses, office expenses, selling and distribution expenses, marketing expenses, depreciation, bad debts etc.

Non-operating expenses are expenses incurred on non-core activities. These expenses are not related to production or sales, but are incidental to the business operations. Few examples of non-operating expenses include: interest expense, loss on sale of a fixed asset, legal fee, etc.

Activity 3.1

1. Fill in the blanks:

a) Income statement is a summary of _____ and _____ for an accounting period.

b) Income is the excess of _____ over _____.

c) Goods worth Rs.25,000 are sold on 20th March 2020 but the actual payment is received on 12thApril 2020. The sales revenue will be recorded in the year ending_____. (Assume that the business entity follows the financial year 1st April to 31st March)

d) Realisation principle in accounting is the basis of _____ recognition.

e) Prepaid expense is recognised as an expense during the _____ accounting period.

f) Loss on sale of investments is a _____ .

3.4.3 Few Important Concepts

We shall now discuss some important elements of the Income statement in detail.

I. Cost of Goods Sold

Having studied the types of revenue and expense that form part of the trading and profit and loss account, now we will read about the expenses that constitute the cost of goods sold. Cost of Goods Sold (COGS) is the direct costs incurred in the production of goods or services that are sold during an accounting period. It includes raw material cost, direct labour cost and direct factory overheads assigned to the goods which are sold during a particular accounting period. The excess of sales revenue over cost of goods sold results in **gross profit**. Cost of goods sold includes the expenses related to the goods or inventory which have been converted into sales during an accounting period. It can be depicted in an equation as follows:

COST OF GOODS SOLD = OPENING STOCK + PURCHASES + DIRECT EXPENSES – CLOSING STOCK.

Illustration 1

Let us illustrate the idea based on a simple example for a better understanding of the concept of COGS. A manufacturing concern First Class Ltd. has an opening stock of inventory worth Rs. 1,20,000 on 1st April 2020. During the fiscal year from 1st April 2020 to 31st March 2021, they made the following transactions:

a.	They purchased raw material worth	Rs. 1,80,000
b.	Wages paid to direct labour	Rs. 40,000
c.	Carriage Inwards	Rs. 3,000

d. Factory fuel and lighting Rs. 10,000

e. Sales made during the year Rs. 3,30,000

The closing stock of inventory (unsold) on the last day of the fiscal year was Rs. 65,000.

(Please recollect the golden rule of accounting- that all expenses and losses are debited and all incomes and gains are credited.)

Thus, the trading account of First Class Ltd. for the fiscal year ending 31st march 2021 will appear as follows:

Trading Account of First Class Ltd. for the year ended 31st March 2021

Particulars (Debit)	Amount (Rs.)	Particulars (Credit)	Amount (Rs.)
Opening Stock	1,20,000	Sales Revenue	3,30,000
Purchases	1,80,000	Closing Stock	65,000
Direct Labour	40,000		
Carriage Inwards	3,000		
Factory Fuel & Lighting	10,000		
Gross Profit	42,000		
	3,95,000		3,95,000

As discussed, the Cost of Goods Sold will be computed as follows:

Cost of Goods Sold = Opening Stock + Purchases + Direct Expenses – Closing Stock

= Rs. 1,20,000 +Rs. 1,80,000 + Rs. (40,000+3,000+10,000) – Rs. 65,000

= Rs. 2,88,000

Subsequently, gross profit is the excess of sales revenue over cost of goods sold. Hence, is computes as:

Gross Profit = Rs. 3,30,000 – Rs. 2,88,000 = Rs. 42,000

II. Inventory valuation

As discussed, assets are recorded in the balance sheet at the cost price at which they are purchased. Similarly, inventory is also valued at cost. The challenge here is that the cost of inventory purchased doesn't remain constant over an operating cycle.

Inventory used in the production of finished goods is purchased multiple times in an operating cycle to ensure a smooth production process. Similarly, in a trading business, inventory is purchased in multiples batches to ensure smooth sales. However, the cost of purchasing inventory might fluctuate during an accounting period resulting in different cost prices. It is because of this fluctuation in the purchase price of inventory that various methods of inventory valuation have evolved. Two of the most commonly used methods are as follows:

- **First in First out (FIFO):** This method is based on the assumption those materials/inventory purchased first are issued first for production process or sales. Hence, they are priced at the cost of oldest materials/inventory listed in the stores ledger until all units of the oldest batch are used up. *Alternatively*, sale of goods is made in the order in which they are purchased. Hence, inventory purchased first, will be sold first.

- **Last in First out (LIFO):** In contrast to FIFO, LIFO is based on the assumption those materials/inventory purchased last in order are issued first for production process or sales. Hence, the inventory issued for the production process is priced at the cost of materials which were purchased last in the order until that batch exhausts. The same process continues when next batch of inventory is issued for production. This also implies that goods which are purchased last, are sold first and hence they are valued at the cost of inventory which was purchased last in order.

Let us understand this with the help of an illustration:

Illustration 2

Date	Particulars	No. of units	Cost per unit (Rs.)	Amount (Rs.)
January 1	Opening Inventory	500	3	1500
January 10	Purchases	1000	4	4000
January 12	Purchases	2000	6	12000
January 18	Purchases	4000	4	16000
January 24	Purchases	2000	7	14000
		9500		**47500**
January 11	Sales	1000		
January 13	Sales	500		
January 17	Sales	1200		
January 21	Sales	2000		
January 29	Sales	1300		
		6000		

Under the First-in First-out method, inventory valuation will be done as follows:

First in First out Method

Date	Quantity sold	Quantity Break-up	Rate	Amount	Total Amount
January 11	1000	500	3	1500	
		500	4	2000	
January 13	500	500	4	2000	
January 17	1200	1200	6	7200	
January 21	2000	800	6	4800	
		1200	4	4800	
January 29	1300	1300	4	5200	
TOTAL SALES	**6000**				**27500**
CLOSING INVENTORY	3500	1500	4	6000	
		2000	7	14000	
	3500				**20000**
TOTAL	**9500**				**47500**

Therefore, valuation under FIFO will be:

Cost of goods sold	27500	
Closing inventory	20000	
	Total	**47500**

Now, under the Last-in First-out method, inventory valuation will be done as follows:

Last In First Out Method

Date	Quantity sold	Quantity Break-up	Rate	Amount	Total Amount
January 11	1000	1000	4	4000	
January 13	500	500	6	3000	
January 17	1200	500	6	3000	
		700	6	4200	
January 21	2000	2000	4	8000	
January 29	1300	1300	7	9100	
TOTAL SALES	**6000**				**31,300**
CLOSING INVENTORY	3500	700	7	4900	
		2000	4	8000	
		300	6	1800	
		500	3	1500	**16,200**
TOTAL	**9500**				**47,500**

Therefore, valuation under LIFO will be:

Cost of goods sold	31,300	
Closing inventory	16,200	
	Total	**47,500**

Based on the illustration above, we can see how the valuation of inventory and cost of goods sold is affected by the change in valuation method.

III. Closing Stock

Closing stock is the amount of inventory lying unsold at the end of an accounting period. It can be in the form of raw material, work-in-progress or finished goods. The closing stock at the end of an accounting period is carried forward to the next accounting period. The calculation of closing stock is done as follows:

CLOSING STOCK = OPENING STOCK + PURCHASES – COST OF GOODS SOLD

Every business entity calculates its unsold goods at the end of the period and puts a value against it. Various methods are used for calculating the value of closing stock. Two of them namely, LIFO and FIFO have been discussed in the previous point. Closing stock is a real account and therefore, it appears on the assets side of the balance sheet.

IV. Depreciation

As already discussed, fixed assets are the ones having a useful life of more than one year. They provide benefits to the business in the long run and thus, are bound to suffer some wear and tear with the passage of time. Depreciation is the gradual decline in the value of a fixed asset over its useful life due to use, wear and tear or obsolescence. Thus, every year the proportionate decrease in the value of the fixed asset is charged as depreciation in the Profit and Loss (P&L) Account. It is the expired cost of a fixed asset which is recorded as an expense during an accounting period.

Fixed assets generate revenues for the business for multiple accounting periods. However, with each passing year, the earning capacity of the fixed asset declines because of physical wear and tear. This is why, every year the depreciation on fixed asset is written off against the revenues generated during that period. It is a non-cash expense.

Now the question arises that how the depreciation of each year should be calculated? There are various methods to calculate depreciation. The two most commonly used methods are:

i. Straight line method

ii. Written down value method

Any of the two methods of depreciation can be used by the business entity. However, it is important to follow the same method of depreciation every year.

Now we shall discuss the basic terminology of depreciation:

- **Original cost of the asset:** This is the cost at which the fixed asset has been purchased and made available for use in the business.
- **Salvage value:** It is the expected recovery or scrap value of the asset at the end of its useful life.
- **Useful life:** The time period (in years) for which the asset is expected to be used for the operations of business.
- **Depreciable cost:** It is the net cost after deducting the salvage value from the original cost of the asset. This is the cost of asset to be depreciated during its useful life. Some portion of depreciable cost will expire and treated as an expense each year until the useful life of asset. That expired cost is known as depreciation.
- **Book Value:** The original cost of the asset less its depreciation to date (accumulated depreciation) is known as the book value of the asset. This is also referred to as the written down value.

V. Bad Debts

Bad debts are the accounts receivable which could not be collected by the business firm after making all reasonable efforts. We know that sales of goods and services are made on both cash and credit basis by a business

entity. Also, as per the revenue recognition concept, revenue is recognised when the sale is made and not when the cash is received. Now consider a credit sale to customers of Rs. 1000. The following entries will be made in the books of accounts:

Debtor A/c	Dr.	Rs.1000
To Sales A/c		Rs. 1000

Thus, the sales revenue increases by Rs. 1000 and debtors also increase by Rs. 1000. Debtors are shown as a current asset in the balance sheet as the payment for credit sales is expected to be received within few weeks or months. Now assume that the debtors defaulted on their payments and went bad. The business entity will have to make the following journal entry in the books:

Bad Debts A/c	Dr.	Rs.1000
To Debtors A/c		Rs.1000

The debtors will be reduced by Rs. 1000 and an expense in the Profit and Loss A/c is created in the name of Bad debts. Bad debts lead to reduction in the amount of profits as it is recorded as an expense in the Profit and Loss Account. Similarly, a loss in collection of a bad or doubtful debt is also recorded as an expense in the Profit and Loss Account as well as deduced from the accounts receivables balance is the Balance Sheet.

VI. Provision for doubtful and bad debts

The accounting principle of 'prudence' states that expected losses must be provided for and expected profits must not be accounted until realised.

We know that a business entity makes both credit and cash sales during an accounting period. However, all credit sales may not be realized in the same year in which the sales are made. Some realizations may happen in the succeeding year. The entity, therefore, has to make provision at the end of the accounting year, for likely bad debts, which may happen during the course of the next year.

VII. Income Tax/Provision for Tax

Income tax is a charge on income earned by the business, which has to be statutorily submitted to the government's income tax department every year. Thus, it is recorded as an expense in the Profit and Loss A/c every year. The amount of tax liability is computed as per the law. We have Income Tax Act, 1961 in India which governs the computation and collection of income tax. However, the tax liability is determined on the basis of books profits calculated as per law and not on the basis of net profit reported by business. A business firm estimates its tax liability usually in advance and a provision is created for the same. Provision for tax is recorded as an expense in the profit and loss account as it is created for current year's tax obligation. Also, provision for tax is shown as a current liability in the balance sheet. So, when the actual tax is paid, it is set off against the provision of tax.

3.5 PROFIT AND LOSS

So far, we have learnt about the various revenue and expenses arising during the course of business operations and shown in the Trading & Profit and Loss Account. Broadly, we understand that profit is the excess of revenue over the expenses recognised during a fiscal year (or accounting period). Conversely, loss is the excess of expenses over revenues realised during a fiscal year. However, the significance of dividing income statement into trading and profit and loss account lies in the presentation of **gross profit** and **net profit** respectively. Besides, business entities are also interested in ascertaining the profit arising solely from business operations, referred to as **operating profit**.

3.5.1 Gross Profit

The excess of sales revenue over the cost of goods sold is called gross profit. Whereas, gross loss is the excess of cost of goods sold over revenue earned from sales. It only deducts the direct expenses related to the production of goods. Hence, it is the net result of a trading account. Gross profit, taken as a percentage of sales is a significant financial ratio used in financial analysis by managers for decision making purposes. This percentage indicates the average mark-up obtained on products sold.

Thus,

GROSS PROFIT = SALES – COST OF GOODS SOLD

GROSS PROFIT RATIO = $Gross\ Profit/Sales \times 100$

Gross Profit or Loss is transferred to the Profit and Loss Account.

3.5.2 Operating Profit

Operating profit is derived from gross profit. It reflects the remaining income after deducting all the operating expenses. In addition to COGS, these expenses include rent, insurance, salaries, administrative expenses, selling and distribution expenses, as well as amortization and depreciation of assets. All those expenses that are necessary to run the core business operations must be taken into account to arrive at the operating profit. It is the profit from core business operations before deducting interest and tax expense. It is also referred to as EBIT i.e. earnings before interest and tax. Therefore,

OPERATING PROFIT = GROSS PROFIT – OPERATING EXPENSES including DEPRECIATION/AMORTIZATION

The idea is to separate the income earned from production and sales from the other non-core activities of business.

3.5.3 Net Profit Before Tax

Net profit before tax is the surplus of all business income over all expenses including interest but excluding tax. This is the profit available to the business entity as a result of both operating and non-operating activities. This

profit is usually referred to as PBT (Profit Before Tax) or EBT (Earnings Before Tax).

NET PROFIT = GROSS PROFIT + OTHER BUSINESS INCOMES – INDIRECT EXPENSES (excluding Tax)

3.5.4 Net Profit

Net profit is simply, the amount which is available to the business for appropriation. It is the net income from both operating and non-operating business activities after reducing both direct and indirect expenses. It is either distributed as dividends to shareholders (owners) or retained in the business as **retained earnings**, thereby increasing the owners' equity in the business. Alternatively, it is called as PAT (Profit After Tax) or EAT (Earnings After Tax).

After dividend distribution (if any), the remaining surplus is added to the retained earnings. Retained earnings accumulated over the years is shown in the Balance Sheet under the head Reserves and Surplus.

Net profit impacts the decision of various users of financial statements such as management, investors, creditors, competitors etc. For example, creditors refer to the net income of a company to gauge the repayment capability before sanctioning a loan.

Activity 3.2

1. Classify each item listed in Column A under appropriate classification in item B, assuming that the information relates to a small manufacturing company.

A	B
Raw material	Operating revenue
Interest received on investments	Non-operating revenue
Dividends received from shares	Cost of goods sold
Wages to workers	Selling and distribution expenses
Carriage outwards	Administrative expenses
Carriage inwards	Non-operating expense
Salary to office staff	None of the above
Rent of office	
Power and Fuel	
Selling agents' commission	
Audit fee	
Legal fee	
Advertising	
Municipal taxes	
Interest expense on loan	
Provision for Income Tax	
Profit on sale of furniture	
Sales revenue	
Sales discount	
Purchase returns	

2. Fill in the blanks

   a) The maximum amount of capital that can be raised by a company is called _____.

   b) All fixed assets except _____ are subject to depreciation.

c) The gross profit is transferred to_____.

d) All indirect expenses are _____ in the profit and loss account.

e) Goodwill is _____ asset.

f) Advance income received is shown on the _____ side of Balance Sheet.

g) Depreciation is the net cost after deducting _____ from the original cost of the asset.

h) Under the _____ method of valuing inventory, closing stock is valued at the oldest price.

3.6 INCOME STATEMENT

The balance sheet represents the summary of the assets, liabilities and net worth of the business at the end of an accounting period. In a way, it summarises the net effect of business operations and transactions made during the accounting period. However, it does not disclose anything about the business operations. What was the sales volume and revenue? How much direct and indirect expenses were incurred? What was the amount of operating and non-operating income? How many purchases of raw materials were made? All these answers are in fact, addressed by the income statement of the business. Income statement is also commonly referred to as Profit and Loss Account. It discloses the business's revenue, costs of goods sold, gross profit/loss, selling and administrative expenses, other non-operating expenses and income, taxes paid, and net profit/loss in a coherent and logical manner. The profit or loss is determined by taking all income and subtracting all expenses from both operating and non-operating activities pertaining to an accounting period. For a systematic determination of gross profit or loss and net profit or loss, income statement is divided in two sections namely: **Trading Account** and **Profit and Loss Account**.

3.7 PREPARING A TRADING AND PROFIT AND LOSS ACCOUNT

Having understood the basic concepts of income and expense as well as revenue recognition, we shall now prepare a trading and profit and loss account. It is also commonly referred to as Profit and Loss Account (P&L) or Income Statement or statement of operations. It is a final account that shows the summary of all revenue and expense recognised during the accounting period, the net effect of which is reflected in the profit earned or loss incurred. Thus,

REVENUE – EXPENSE = PROFIT/LOSS

Some fundamental rules must be clear while preparing a trading and profit and loss account:

i. The P&L account has two sides – debit and credit. We must debit all expenses and losses; and credit all income and gains. Debit balances are shown on the left-hand side and credit balances on the right-hand side.

ii. The incomes and expenses must relate to the current accounting period.

iii. The balances of expenses, incomes, losses and gains are taken from the trial balance. However, there might be some omissions or corrections in the trial balance which need to be adjusted in the P&L account if they relate to current year.

iv. Trading account represents the gross profits/loss from the core business operations.

v. Profit and Loss account represents the net income/loss from all the operating and non-operating activities of the business entity.

Illustration 3

Let us illustrate the preparation of profit and loss prepared from a trial balance with the help of an example. The trial balance of XYZ Ltd. as on 31st March 2021 is given as follows:

TRIAL BALANCEXYZ Ltd.as on 31/03/2021

Particulars	**Dr. (Rs.)**	**Cr. (Rs.)**
Capital		20,000
Debtors	5,400	
Machinery	7,000	
Creditors		2,800
Wages	10,000	
Purchases	19,000	
Opening stock	4,000	
Cash at Bank	3,000	
Carriage inwards	300	
Salaries to office staff	500	
Rent of building	800	
Sales revenue		29,000
Drawings	1,800	
	51,800	**51,800**

Additional information to the trial balance has been provided as follows:

i) Closing Stock is valued at Rs. 1,200.

ii) Outstanding Rent of the building is Rs. 200.

iii) Depreciation is charged on machinery at 10% p.a.

iv) Prepaid wages amount to Rs. 400.

As we learnt, the P&L account takes the balances of revenues and expenses from the trial balance and adjustments are made for any additional information. Let's start with the preparation of trading account. Trading account records the sales revenue and cost of goods sold for the accounting period, the net effect of which is represented in the gross profit or gross loss. The gross profit or loss of the trading account is then transferred to the profit and loss account against which all indirect expenses are set off as well as any other non-operating income is added. All expenses are shown on the debit

side and incomes on the credit side. Hence, the income statement of XYZ Ltd. will appear as follows.

Trading and P&L Account XYZ Ltd. for the year ending 31st March 2021

Particulars (Dr.)	Amount	Particulars (Cr.)	Amount
To Opening Stock	4,000	By Sales	29,000
To Purchases	19,000	By Closing stock	1,200
To Wages 10,000 Less: Prepaid wages (400)	9,600		
To carriage inwards	300		
		By Gross Loss c/d	2,700
	32,900		**32,900**
To Gross Loss b/d	2,700	By Net Loss	4,900
To Salaries to office staff	500		
To Rent of building 900			
Add: Outstanding rent 200	1,000		
To Depreciation on machinery	700		
	4,900		**4,900**

Activity 3.3

1. State True or False:

   i) In trading and profit and loss account, opening stock appears on the debit side because it forms the part of the cost of sales for the current accounting year.

   ii) Rent, rates and taxes is an example of direct expenses.

   iii) If the total of the credit side of the profit and loss account is more than the total of the debit side, the difference is the net loss.

   iv) Discount received is an example of indirect income.

   v) As per the double-entry system of accounting, when expense increases, it is debited.

   vi) Interest income from investments is a non-operating income for a manufacturing company.

2. Indicate whether each of the following items would appear on the income statement (IS) or the balance sheet (BS) or both. Also specify the head under which it will be classified.

Items	IS or BS or Both	Head of classification
Sale of services revenue		
Office expenses		
Marketing expense		
Factory Fuel and water charges		
Advance salary paid		
Income received in Advance		
Closing Stock		
Outstanding rent		
Office equipment		

Accounts receivable		
Provision for Taxes		
Profit on sale of Investments		
Preliminary expenses of company (not written off)		

SUMMARISING THE INCOME STATEMENT: P&L ACCOUNT

Profit and Loss account is one of the three final accounts generated by the business at the end of an accounting period. It shows the gross and net profits or losses generated by the business in an accounting period. Therefore, it's a measure of management's ability to generate income from assets. P&L account is divided into two sections. Trading account reflects the earnings from core business operations in the gross profit or gross loss. Whereas, the profit and loss account summarises all the operating and non-operating revenues and expenses in the net profit or loss. The revenues and expenses recorded in a profit and loss account belong to the current accounting period. P&L account is also commonly referred to as the statement of profit and loss, income statement, statement of operations etc. Its preparation is based on the accounting principles of revenue recognition, matching and accruals. The net profit or loss sustained by the business as calculated by the P&L account increases or decreases the retained earnings in the balance sheet respectively.

3.8 BALANCE SHEET

The 'balance sheet' as the name suggests, is the summary of the balances of the various assets, liabilities and capital accounts of a business entity as on a particular date. In simple terms, it is the summary of things owned by the entity as well as the claims against those things represented in monetary terms as on a specific date. It contains information about both the resources and obligations of an entity. Thus, it depicts the financial position of a business at a given point of time which is usually the close of an accounting period. It also depicts net worth which is just one part of the balance sheet which is also the total shareholders' funds. Balance sheet depicts financial position as on a particular date.

In brief, the various aspects of a balance sheet can be put as follows:

i. A Balance Sheet is a financial statement prepared from the point of view of a business entity, firm or company, and not from the point of view of its owners, investors, directors, creditors etc.

ii. A Balance Sheet is a statement and not an account.

iii. It is a statement showing the financial position of the business entity on a specific date.

iv. It is a historical report showing the cumulative effect of past transactions.

v. A Balance Sheet always relates to a particular point of time or date and not a period.

vi. A Balance Sheet depicts the resources owned (*assets*) on one side and obligations (*liabilities*) of a business entity on the other side.

vii. All items on a Balance Sheet are represented in terms of monetary value.

viii. The total of both sides on a balance sheet are always equal.

Let us understand the concept of a balance sheet with the help of an example.

Mr. Raghav is the owner of a start-up firm RT Ltd. On 1st April 2020, the position of his business firm RT Ltd is as follows: He has invested his personal savings worth Rs. 10,00,000 cash into the firm as Capital to start the business. He also took a loan from bank of an amount equal to Rs. 3,50,000 for buying Office Premises for his business firm. Further, he purchased some Machinery worth Rs. 2,00,000 and a Motor car worth Rs. 3,00,000 for the operations of the firm. To start the business operations, he brought in Inventory worth Rs. 2,50,000 and kept an amount of Rs. 20,000 as Cash and also deposited an amount of Rs. 50,000 in a bank account for the purpose of business. Apart from this, Mr. Raghav invested the remaining amount of Rs. 1,80,000 in government bonds on behalf of his firm RT Ltd.

Now let us generate a balance sheet for RT Ltd. as on 1st April 2020 on the basis of given information. We will classify the above information into the resources owned by RT Ltd. and the claims against those resources. The commonly accepted format of Balance Sheet in India shows Liabilities on the **left-hand side** and Assets on the **right-hand side**.

As already discussed, a balance sheet is always prepared from the point of view of a business entity and not the owner. Hence, the balance sheet or the position statement of RT Ltd. as on 1st April 2020 would be presented as follows:

Balance Sheet of RT Ltd.as on 1st April 2020

Liabilities (obligations of the firm)	Amount (in Rs.)	Assets (resources owned by the firm)	Amount (in Rs.)
Capital	Rs. 10,00,000	Machinery	Rs. 2,00,000
Loan from Bank	Rs. 3,50,000	Building (Office Premise)	Rs. 3,50,000
		Motor Car	Rs. 3,00,000
		Investment in Bonds	Rs. 1,80,000
		Inventory	Rs. 2,50,000
		Cash	Rs. 20,000
		Bank Account	Rs. 50,000
Total:	**Rs. 13,50,000**	**Total:**	**Rs. 3,50,000**

Here, we can see that the total value of resources owned by RT Ltd. which includes building, machinery, car, cash, investments and inventory is worth Rs. 13,50,000. In accounting, these resources owned by the business are referred to as *assets*. Further we observe that the claims against these resources in the form of bank loan stands at Rs. 3,50,000. Such claims against business entity's assets are referred to as *liabilities*. Now, the net worth of RT Ltd. will be calculated by deducting the claims against its worth from its total worth of resources which is an amount equal to Rs. 10,00,000 (*13,50,000 *minus* 3,50,000).

Thus, the net worth of an entity represents the claims of its owner(s) which is also referred to as **owner's equity**. We also learnt that the items of monetary value possessed by an entity are referred to as **assets**. Whereas, the amount owed by an entity which represents claims against its assets by outsiders are called as **liabilities**. Thus, we can say that the position statement is a summary of the assets, liabilities and net worth of an entity at a specific point of time.

3.8.1 Dual Aspect Concept

Let us take a step further in the previous example: suppose Mr. Raghav purchased some goods (raw material) worth Rs. 10,000 in cash. This transaction will have a dual impact on the balance sheet of RT Ltd. First, the inventory will increase by Rs. 10,000 and second, the cash balance will decrease by Rs. 10,000. Similarly, if the goods were purchased by Mr. Raghav on credit for Rs. 10,000, the inventory (asset) will go up by Rs. 10,000 whereas, the creditors will also increase by Rs. 10,000. This brings us to a fundamental accounting concept known as **dual-aspect** in accounting. This concept explains that each transaction made by a business entity impacts the business in two different aspects which are equal and opposite in nature. It means that every business transaction will affect at least two accounts which implies that for every debit there is an equivalent credit and vice versa. For example, if your company borrows money from the bank, the company's asset Cash is increased (debited) and the company's liability Notes Payable is also increased (credited). It is because of this feature that both sides (assets and liabilities) of the balance sheet will always be equal. This concept forms the basis of double-entry accounting and is used by all accounting frameworks for generating accurate and reliable financial statements. The dual aspect concept is also explained in the fundamental accounting equation:

ASSETS = LIABILITIES + OWNERS EQUITY

The above accounting equation indicates that an entity's assets have to be equal to the sum of its liabilities and owner's equity. This equation is considered to be the foundation of double entry system of accounting. It ensures that every entry made on the debit side has a corresponding entry made on the credit side and vice versa. Hence, the double entry made will automatically balance the accounting equation. To sum it up,

- An increase in assets is followed by an increase in liabilities and/or equity and vice versa.
- A decrease in assets is followed by a decrease in liabilities and/or equity and vice versa.
- An increase in an asset is followed by a decrease in another asset and vice versa.
- An increase in a liability is followed by a decrease in another liability and vice versa.

Let's consider the following series of examples to explain this concept further:

Mr. Raghav further invested cash worth of Rs. 4,00,000 into his business RT Ltd. The effect of this transaction will be as follows:

- Capital will increase by Rs. 4,00,000.*(Liabilities side)*
- Cash will also increase by Rs. 4,00,000.*(Assets side)*

Also, Mr. Raghav repaid the loan in cash, he took from bank for his office building worth Rs. 3,50,000. This transaction will have the following effect:

- Loan from Bank will reduce by Rs. 3,50,000. *(Liabilities side)*
- Cash will also reduce by Rs. 3,50,000. *(Assets side)*

Lastly, Mr. Raghav sold the investments he made in government bonds for Rs. 2,00,000 cash. In this transaction, RT Ltd. made a profit of Rs. 20,000 (as the gold bonds were purchased for Rs. 1,80,000 initially). The effect of this transaction will be shown as follows:

- Investment in Government Bonds will reduce by Rs. 1,80,000. *(Assets side)*
- Cash will increase by Rs. 2,00,000. *(Assets side)*
- Profits of Rs. 20,000 will be shown by an increase in Capital. *(Liabilities side)*

Hence, a balance sheet will always balance its two sides. The effect on one account will be compensated by an equal and opposite effect on another account.

Activity 3.4

1. State whether the following statement is True or False:

   i) An increase in asset always results in increase in owner's equity.

   ii) If you own a house worth Rs. 4,00,000 and a home loan of Rs. 2,50,000, then your equity is Rs. 1,50,000.

   iii) Losses result in increase in owner's equity.

   iv) An increase in assets could be equalled by increase in liabilities.

   v) Assets are the economic resources that are expected to produce future benefits

vi) During an accounting period, the assets increased by Rs. 4,000 and the equity increased by Rs. 1,000. For the accounting equation to balance, the liabilities must increase by Rs. 5,000.

2. For the transactions given below, circle the correct effect on the accounting equation of the business entity:

(i) The owner invests personal cash in the business.

Assets	Increase	Decrease	No Effect
Liabilities	Increase	Decrease	No Effect
Owner's Equity	Increase	Decrease	No Effect

(ii) The business entity purchases raw materials on credit.

Assets	Increase	Decrease	No Effect
Liabilities	Increase	Decrease	No Effect
Owner's Equity	Increase	Decrease	No Effect

(iii) The business entity repays a long-term loan to the bank.

Assets	Increase	Decrease	No Effect
Liabilities	Increase	Decrease	No Effect
Owner's Equity	Increase	Decrease	No Effect

(iv) The owner withdraws some cash from the business for personal use.

Assets	Increase	Decrease	No Effect
Liabilities	Increase	Decrease	No Effect
Owner's Equity	Increase	Decrease	No Effect

3.9 BALANCE SHEET CONTENTS & CLASSIFICATIONS

Having understood the basic concepts and functioning of a balance sheet, let us now study the contents of a balance sheet. We have seen that every transaction affects the financial statements of a business but it is not feasible to draw up the financial statements after every transaction. Thus, financial statements such as balance sheet, P&L and cash flow statement are prepared at the end of a specified period, usually, a year. This specified period is referred to as an **accounting period** or a financial year.

As already discussed, the balance sheet prepared at the end of the accounting period reflects upon the position of the entity's assets, liabilities and capital accounts on that specific date. The balance sheet is further sub-grouped in order to facilitate a more meaningful and convenient analysis as shown in the following illustration:

Balance Sheet of RT Ltd.as on 31st March 2019

(Rupees in thousands)

Liabilities	**Amount (in Rs.)**	**Assets**	**Amount (in Rs.)**
Capital		Goodwill	700
Equity Shares of Rs. 10 each	2000	**Fixed Assets**	
12% Preference Shares of Rs. 100 each	500	Land and Buildings	2800
Reserves & Surplus	1000	Plant and Machinery 2000 Less: Depreciation (-) 500	1500
Capital Reserve	500		
		Current Assets	
Long term Liabilities		Cash	200
8% Debentures	1000	Axis Bank Account	300
Secured Loan from Bank	2000	Marketable Securities	200
		Bills Receivable	1200
Current Liabilities		Closing Stock (Inventory)	1100
Bills Payable	1800	Prepaid Expense	500
Income Tax Provision	400		
Bank Overdraft	800	**Other Assets**	
		Deferred Expenditure	1500
	10000		10000

To be able to read and analyse a balance sheet, you must understand its different elements and what they signify about the financial health of the business. An accurate understanding of the balance sheet enables an analyst to evaluate the liquidity, solvency, and overall financial health of a business.

A balance sheet represents the assets, liabilities and capital of the business in such a way that the accounting equation always balances i.e. ASSETS must always be equal to the sum of LIABILITIES and OWNERS' EQUITY. Let us talk about these balance sheet elements in detail.

Assets are resources of economic value that a business entity owns with the expectation that they will provide future economic benefit to the business. They are generally divided into two categories: current assets and non-current assets. The liquidity of the asset determines into which category it falls. Liquidity is the ease with which an asset can be converted or realized into cash. Those assets that can be converted into cash within 12 months are considered as current assets. For example, inventory, short term investments, bills receivable, cash and bank balance, etc. Non-current assets, on the other hand, are the assets which generally cannot be converted to cash within 12 months and are normally used to run the business. These include fixed assets, such as equipment used in the running of the business, furniture and fixtures and also any real estate the business owns. Non-current assets also include long term investments made by business and intangible assets such as goodwill etc.

Liabilities are obligations the business owes to outsiders. They are also divided into current liabilities and non-current liabilities. Current liabilities are obligations that are scheduled to be paid within a span of 12 months.

Most common current liabilities include accounts payable, business line of credit, current instalment of a long-term debt, provisions etc. Non-current liabilities are long-term liabilities that are usually paid in more than one year. Usually, such long-term liabilities include debentures and bonds, borrowings from financial institutions and banks. The borrowings can either be secured or unsecured.

Owners' Equity represents the owners' residual interest in the assets of a company, net of its liabilities i.e. OWNERS' EQUITY = ASSETS – LIABILITIES. It is also referred to as net worth of the business. In other words, owner's equity is everything that is left from the assets after paying all the liabilities. It consists of the **capital contributed** by owners and **retained earnings** of the business. We will discuss the constitution of retained earnings later in this chapter. Hence, the amount of equity is increased by profits earned during the year, or by the issuance of new equity. On the other hand, equity is decreased by financial losses, dividend payments, etc.

Assets, liabilities and capital accounts are sub-categorised in a balance sheet on the basis of their liquidity and to present a more meaningful and useful view of the financial position of business. Whatever system of classification is used should be applied on a consistent basis, so that balance sheet information is comparable over multiple reporting periods. Common classifications used in a balance sheet are discussed as follows:

3.9.1 Current Assets

A current asset is an item on an entity's balance sheet that is either cash, cash equivalent, or an asset which can be normally converted into cash within the operating cycle of business, or within one year. whichever is shorter. An operating cycle is the duration of time it takes for a business to convert its inventory into cash. It includes the time taken in acquiring inventory, converting inventory to sales and then recovering cash from trade receivables. The operating cycle starts with cash and ends with the collection of cash. Length of an entity's operating cycle is an indicator of its liquidity position and asset-utilization. Common examples of current assets are listed below in order of their relative liquidity:

- Cash and cash equivalents
- Short term investments (ex: Marketable Securities)
- Accounts Receivable
- Inventory
- Prepaid Expenses

Cash and cash equivalents

Cash refers to the currency, cheques or any other document that circulates as cash. It includes the cash kept in the cash chest of business and also the deposits made in current accounts with banks. Further, cash equivalents are the highly liquid investments that are readily convertible into cash and are subject to insignificant risk of change in price. Examples include Cash and Paper Money, Treasury bills, Money Market funds, etc. Cash and cash

equivalents are the most liquid form of current assets available for a firm's day-to-day operations.

Short-term investments

It is advisable to invest excess cash held by a firm to generate additional income. It may be invested in financial instruments that can be quickly converted into cash like equity shares, debentures and government securities. These assets are readily marketable and could be sold whenever cash is required. They are classified as current assets as these investments tend to mature within a year or less.

Accounts Receivable

Usually, a business entity sells its goods and services both in cash as well as on credit. Accounts receivable refers to the balance of money due to a business entity for the sales made on credit to its customers. It is also denoted as **sundry debtors** in the balance sheet. It represents the amount arising out of normal business transactions such as credit sales and the credit period usually ranges from few days to months. In most situations these accounts are unsecured and have only the personal security of the customer. In some cases, customers default and the payment may not be realised. These defaults in payment by debtors are called **bad debts**. Bad debts are recorded as an expense in the Profit and Loss account.

Inventory

Inventory generally consists of raw materials required to manufacture the products, unfinished goods at various stages of completion i.e., work in progress and finished goods i.e., goods ready for sale. Apart from these, there may be inventory of stores and supplies. Thus, we have raw material inventory, work in progress inventory, finished goods inventory and stores and supplies inventory. It is also commonly referred to as stock-in-trade. It may be noted that the type of inventory may vary depending on the nature of business. For example, a manufacturing firm will have a combination of raw material, unfinished goods and finished goods as inventory, but for a trading firm, inventory will usually include finished goods available for sale.

As a general principle, inventory is valued at cost. It implies that all normal costs incurred to make the goods available at the place where it can be sold or used are treated as costs of inventory.

Prepaid Expenses

Prepaid expenses are items which are usually paid in advance such as rent, taxes, insurance etc. For example, if rent for two months of the office building is paid in advance, then the business acquires a right to occupy the building for two months. This right to occupy is an asset but will expire within a fairly short period of time, therefore it is a current asset. Therefore, it is shown on the asset side of the balance sheet.

Since these expenses are paid in advance, they become due in the next accounting period. Hence, they are not debited in the Profit and loss account of the current period.

3.9.2 Fixed Assets

Fixed assets are tangible, long-term assets used in the business that are of a relatively fixed nature. These include building and land, furniture, equipment, machinery etc. Fixed assets are not expected to be consumed or converted into cash within a year, instead they are used in running business operations to generate income. The useful life of fixed assets is more than one year and they are capable of repeated use. Valuation of the fixed assets is usually made on the basis of original cost. However, the assets have a limited useful life and their value decreases over time due to use, wear and tear or obsolescence. Thus, valuation of the asset is reduced proportionate to the expired life of the asset. Such decrease in cost is referred to as **depreciation** in accounting. The conceptual basis could be clarified with an example.

Suppose a manufacturing business firm buys machinery at a cost of Rs. 10,00,000. It is assumed that the machinery will have a useful life of 10 years after which it will be discarded as scrap. Therefore, the depreciation on machinery will be spread out across its useful life of 10 years. The method of calculating depreciation may vary. Two most commonly used methods are: **straight line** and **written down value.**

Under straight line method, depreciation is evenly distributed across the useful life of asset. Hence, after the end of each year the machinery will depreciate by Rs. 1,00,000 (i.e. Rs. 10,00,000/10). And at the end of 10th year, the **book value** of machinery will depreciate to 0. Now let's assume, at the end of its useful life of 10 years, the machinery would be sold as scrap for approximately Rs. 50,000. Therefore, the depreciation for each year will be calculated as follows: Rs. (10,00,000 −50,000)/10 = Rs. 95,000.

Under the written down value method, depreciation is calculated each year as a fixed percentage of the written down value of the asset. The written down value is the remaining value of the asset at the end of each year after reducing accumulated depreciation from original cost. For example, machinery purchased for Rs. 10,00,000, has a useful life of 10 years and the depreciation will be provided @10% p.a. at written down value. The depreciation will be calculated as follows:

Cost of Machinery at the beginning of 1st year	Rs. 10,00,000
Depreciation at the end of 1st year	Rs. 10,00,000 * 10% i.e. Rs. 1,00,000
Cost of Machinery at the beginning of 2nd year	Rs. 9,00,000
Depreciation at the end of 2nd year	Rs. 9,00,000 * 10% i.e. Rs. 90,000
Cost of Machinery at the end of 2nd year	Rs. 8,10,000

The process of providing depreciation for each year will continue like this till the end of useful life of the asset. The value of fixed assets net of depreciation is referred to as **net book value**.

Hence, under the written down value method, the amount of depreciation will reduce with each passing year as the value of the fixed asset keeps decreasing

over its useful life. Whereas, under straight line method, equal amount of depreciation is allocated to each useful year.

Fixed assets normally include assets such as land, building, plant, machinery and motor vehicles. All these items, with the exception of land, are depreciated. Land is not subject to depreciation and hence shown separately from other fixed assets.

3.9.3 Intangible Assets

Intangible assets are the resources or things of value that have no physical appearance and are valuable to the business in the long run. They cannot be touched or seen but represent an intrinsic value without any material being. Some common examples of intangible assets include goodwill, customer relationships, intellectual property such as trademarks, patents, copyrights etc. However, they are only recorded in the accounting books when they are purchased from outside. They are shown in the assets side of the balance sheet and have a useful life of more than one year. As they provide value to the business in the long run, the cost of their acquisition expires over such useful life. Hence, they are **amortized** over their useful life. Amortization is similar to depreciation, with the intent of gradually reducing the book value of the asset to zero by accounting for the gradual consumption of the asset.

Some intangible assets might have an indefinite life too, such as goodwill. **Goodwill** arises when a business firm acquires another business firm and the cost of its purchase is higher than the fair market value of the business. It happens because the acquired business firm has established a popular brand name, or solid customer base, good customer relations, etc. Hence, the excess purchase price paid over the fair market value of the acquired business firm is termed as **goodwill.** When the intangible asset has an indeterminate life, it is not amortized but is periodically tested to see if the recorded cost of the asset has been **impaired**.

Fictitious Assets

As the name suggests, fictitious assets are not actually assets. Yet they appear in the asset side simply because of a debit balance in a particular account has not been completely written off. For example, preliminary expenditure of the company, promotional capital expenditure etc.

3.9.4 Current Liabilities

Current liabilities are the short-term financial obligations of a business entity which are due for payment within the operating cycle of the business or within one year, whichever is less. These are usually incurred when the raw materials or services are purchased on credit. Current liabilities are settled either by using current assets or by the creation of other current liabilities. The ratio of current assets to current liabilities is known as **current ratio/ liquid ratio** and it helps in determining whether a business entity is able to pay all its short-term debts. Common examples of current liabilities include of sundry creditors, bills payable, bank overdraft, outstanding expenses,

income received in advance, provision for income-tax etc. Let us discuss some important current liabilities of a business entity.

Accounts Payable

Accounts payable represent the sum of money owed by a business entity to its suppliers or creditors, usually for the goods or services supplied on credit. These are the monetary obligations of an organisation arising in a short run. Generally, such claims are unsecured.

When the business entity gives a written promise to pay money to a creditor for the purchase of goods or services used in the business or the money borrowed, then the written promise is called as bills payable or notes payable.

Outstanding Expenses

Outstanding refers to 'due but not paid'. These expenses become due during the current accounting and hence, are shown as an expense in the Profit and Loss account. However, as the actual cash payment of these expenses are yet to be done, they are also shown as a current liability in the balance sheet.

For example, the rent of building becomes due for the month of March 2021 but is paid in May 2021. Assuming the accounting period ended on 31st March 2021, the rent of building for the month of March 2021 will be shown as an outstanding rent in the balance sheet as on 31st March 2021.

Income Received in Advance

It is the amount received in the current accounting period but which is due to be received in the next accounting period. Since it is not recognised as income in the current accounting period, it is treated as a current liability in the balance sheet until it becomes due.

Provision For Taxes

Every business entity is liable to pay taxes to the government on its earnings. However, taxes are not necessarily paid on the end date of an accounting period. The due date for payment of taxes usually lies in the next financial year. Hence, a business entity creates a provision for current financial year's taxes to be paid. The provision is reduced when the actual payment of taxes is done out of it.

It is shown as an expense in the P&L account and as a current liability in the balance sheet until the taxes are paid.

3.9.5 Long Term Liabilities (Non-Current Liabilities)

Long term liabilities are the financial obligations of the firm which are not paid off in the current operating cycle or current accounting period. These liabilities do not become due for payment within one year. The financial obligation in case of long-term debt lasts for more than a year. They are classified as **secured** loans or **unsecured** loans. When a long-term loan is obtained against the security (collateral) of fixed assets owned by the entity, it is called as secured loan. On the other hand, an unsecured loan is not

secured by any collateral. Usually, long-term liabilities include debentures and bonds, borrowings from financial institutions and banks, etc.

CONTINGENT LIABILITIES

The literal meaning of the term 'contingent' is 'subject to chance'. Contingent liabilities are those liabilities that may arise depending on an uncertain future event. Until then, both the occurrence and amount of the liability are uncertain. If the event happens, there is a liability, otherwise there is no liability at all. Therefore, they are not recorded in the balance sheet but are required to be disclosed as **footnotes** to the balance sheet to provide a fair view about the affairs of the business to the users.

Contingent liability can be defined as, a **possible obligation** that arises from past events and the existence of which will be confirmed only by occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the enterprise.

A good example of contingent liability is a legal suit contested against the business entity for financial claim. If the case is decided against the entity, the liability arises and in the case of favourable decision, no liability will arise. Hence, it is shown as a contingent liability in the foot-notes of the balance sheet.

3.9.6 Capital or Owners' Equity

Ordinarily in a sole proprietorship firm, the owners' equity constitutes the capital contributed by the owner into the business. However, in case of a company the owner's equity section of the balance sheet is divided into two parts: (1) the share capital representing contributed capital and (2) reserves and surplus representing retained earnings. The share capital is the capital contribution by the shareholders or owners. In case of a company, share capital is the joint stock predetermined at the time of registration which is known as the **authorised capital**. It may consist of either equity share capital or preference share capital (having preferential right to fixed dividend and repayment of capital at the time of liquidation), or both. The share capital is divided into equal units or shares. The **authorised capital** need not all be raised at one time. That part of authorised capital which is issued for subscription by the company is referred to as the **issued capital**.

Equity Share Capital and Preference Share Capital

Equity share capital is also called as the residual capital as the equity shareholders have the residual claims against assets of the company at the time of liquidation, after all the claims of creditors and preference shareholders have been met. Ordinary shares or equity shares have no preferential rights with respect to either repayment of capital or distribution of profits. However, equity shareholders possess the voting rights in the decision making of the company. The dividend distribution to equity shareholders depends upon the profits earned by the company during a particular accounting period Equity shares are not redeemable.

Preference shares, on the other hand, are so called because they have some preferences over the equity shares. These preferences relate to repayment of capital and payment of dividend. In the event of liquidation of the company, remaining assets after the payments to creditors, are first distributed to preference shareholders and lastly to equity shareholders. Similarly, in the event of dividend distribution, the preference shareholders are paid first at a pre-fixed dividend rate. Preference shares could also be made redeemable after a specified period.

Reserves and Surplus

Reserves and surplus are the accumulated earnings of a business entity retained over a period of time and not distributed amongst shareholders as dividends. In other words, when a firm starts its operations, it has no retained earnings. Reserves and surplus normally arise out of profitable operations. Loss incurred by a firm reduces its reserves and surplus. Let's say, if a business firm earns a profit of Rs. 1,00,000 in the first year and decides to distribute Rs. 40,000 as dividends, the reserves and surplus at the end of the year will be Rs. 60,000. Now, in its second year of operation, if the firm makes a loss of Rs. 25,000 then the retained earnings at the end of the 2nd year will be Rs. 35,000. Retained earnings (or reserves and surplus) are in the nature of earned capital for the firm.

In some cases, some part of reserves and surplus can be allocated for specific purposes. These are called as **specific reserves**. Specific reserves can neither be distributed nor be used for any purpose other than specified. Only non-earmarked or **free reserves** are available for distribution as dividends.

Activity 3.5

1. Fill in the blanks

   a) Balance sheet items are classified and listed according to their relative _____.

   b) The accounting concept that requires financial statements to reflect the assumption that the business will continue operating indefinitely, is called the _____.

   c) Individuals or organizations entitled to receive payments from a company are called _____.

   d) The residual interest in the assets of an entity that remains after deducting its liabilities is called _____.

   e) Expiration of cost of intangible assets is referred to as _____.

   f) Contingent liabilities are shown in the _____ of Balance sheet.

2. State three different kinds of transactions that result in decrease in capital or owner's equity.

SUMMARISING THE POSITION STATEMENT (BALANCE SHEET)

After learning about balance sheet, we observe that it is one of the most crucial financial statements as it reflects the financial position of the business and aids decision making process of stakeholders. It is a periodic summary of assets, liabilities and owners' capital as of a particular point in time. This statement in itself does not reveal anything about the details of operations of the business. However, a comparison of two balance sheets could reveal the changes in financial position of the business. A holistic understanding of the operations of the business would require an analysis of two other statements- Income Statement (Profit and Loss) and Cash Flow Statement. We shall read about income statement in the next section.

3.10 RELATIONSHIP BETWEEN INCOME STATEMENT AND POSITION STATEMENT

The income statement mainly determines four elements namely revenue, expense, income (profit) or loss. Profit is reported when revenue exceeds expenses. Whereas, when expenses exceed revenue, loss is booked. It should be noted that the revenue and expenses must relate to a specific accounting period to determine the profit or loss of that particular period. Now, let us recall the fundamental balance sheet equation discussed in the previous section:

ASSETS = LIABILTIES + OWNERS' EQUITY

Here, owners' equity signifies the net worth of the business, and constitutes of the capital contributed by the owners and earnings retained in the business at the end of each accounting period. Hence,

OWNERS' EQUITY = SHARE CAPITAL + RETAINED EARNINGS

The retained earnings shown in the equation above is nothing but the profits earned by the business. These are the profits accumulated by business over the years. Hence, each year's profit is clubbed into retained earnings and shown in the balance sheet as a part of owners' equity. Similarly, if a business incurs loss in an accounting period, retained earnings will be negatively impacted in that year. Thus, we find that profit and loss account is an integral part of any balance sheet in that it is an expansion of one of the terms of the balance sheet.

3.11 SUMMARY

The process of accounting aims at providing the financial information about the business entity to the users with the help of financial statements. Financial statements are the formal end reports that summarise the business operations and transactions conducted in a financial year. These statements are prepared as per the accounting principles to generate systematic and consistent results. They are useful indicators of the financial health of a business entity at a particular point of time. It is vital to present the financial statements in a proper form with suitable contents so that the shareholders and other users of

financial statements can easily understand and use them in their economic decisions in a meaningful way.

There are three main financial statements of a business entity: the **Balance Sheet** (position statement) as at the end of accounting period, the **Statement of Profit & Loss** (income statement) and the **Cash Flow Statement**.

The profit and loss account summarises the revenues and expenses of an accounting period and shows the net profit/loss generated by the company. The net profit after payment of dividends shows the amount of retained earnings and hence links the profit and loss account with balance sheet.

Balance sheet is a periodic summary of the position of business. It is the statement of assets, liabilities and owner's capital at a particular point of time. This statement in itself does not reveal much about the operations of the business, but comparison of balance sheets over a period of time could reveal changes in business position. Realistic understanding of business operations require reading and linking of all the three financial statements mentioned above.

3.12 KEY WORDS

Asset: Any tangible or intangible resource of monetary value that provides economic benefits to a business entity.

Liability: An amount owed by the business entity (the debtor) to an outsider to the business (the creditor). It can be long-term (non-current) or short-term (current).

Current Asset: A current asset is an asset which can be normally converted into cash within the operating cycle of business, or within one year. whichever is shorter.

Current Liabilities: Current liabilities are the short-term financial obligations of a business entity which are due for payment within the operating cycle of the business or within one year, whichever is less.

Intangible Assets: Intangible assets are the resources or things of value that have no physical appearance but are valuable to the business in the long run. Example: goodwill, patents, franchises, copyrights etc.

Contingent Liability: A contingent liability is a potential liability that may occur in the future, such as pending lawsuits or honouring product warranties. It becomes a liability only on the happening of an uncertain future event.

Fixed Assets: These are tangible long-term assets having a useful life of more than one year. They include land, building, plant, machinery, motor vehicles, furniture and fixtures, etc.

Owner's Equity: It is the owner's claim against the assets of a business entity. It could be expressed as total assets of an entity less claims of outsiders or liabilities, includes both contributed capital and retained earnings.

Balance Sheet: It is the summary of the balances of the various assets, liabilities and capital accounts of a business entity at the end of a particular accounting period.

Revenue: It is the income generated by a business from both the core (example: sale of goods or services) and non-core business operations (example: profit on sale of a fixed asset).

Expense: Expenses refer to the costs incurred by a business firm to generate revenue during an accounting period.

Realisation: Recognition of the revenue in accounting based on the assumption that increase in owners' equity arises at the point of sale or provision of goods or services.

Matching: An accounting principle that states that expenses incurred in an accounting period should be matched with the revenues of that period.

Accrual: Income measured on the realisation of revenue independent of the timing of cash receipt and payment.

Cost of goods sold: Direct costs incurred in the production of goods or services that are sold during an accounting period.

Depreciation: It is the expired cost of a fixed asset due to physical wear and tear which is recorded as an expense during an accounting period.

Profit/Loss: Revenue minus expenses for a given accounting period. However, excess of expenses over revenue is termed as loss.

Profit and Loss Account: The final summary of all revenues, gains, expenses and losses recognised during an accounting period reflected in the net profit or loss for that period.

3.13 SELF-ASSESSMENT QUESTIONS/EXERCISES

1. Differentiate between expenditure and an expense. Give suitable examples.
2. Explain the revenue recognition concept with the help of an example.
3. Write short notes on the following:
   a) Operating profit
   b) Earnings before interest and tax
   c) Contingent liability
   d) Retained earnings
   e) Depreciation
4. "Fixed assets are physical assets that provide operating capacity for a number of accounting periods". Explain with the help of suitable examples. Do all fixed assets depreciate?

5. What are bad debts? What is the way to deal with the problem of expected bad debts in accounting?

6. Given below is the summarised Profit and Loss Account of Athena Ltd. for three consecutive accounting periods. You are required to fill in the missing information:

PARTICULARS	**YEAR 1**	**YEAR 2**	**YEAR 3**
Sales	10,000		5,000
Cost of goods sold	5,500	2,500	3,000
Gross Profit		2,700	
Office and administrative expenses	600	400	
Selling and distribution expenses		500	600
Operating Profit	3,500		1,000
Other incomes	2,300		500
Depreciation	300	500	
Interest expense		200	100
Net profit before tax	5000	3,000	1,200
Income Tax		200	
Net profit after tax	4700		1,050

7. Following are the balances extracted from the books of Pratap Clothing House on 31st March, 2020 after the income statement for that year had been prepared and all the relevant adjustments had been made.

Particulars	**Amount (in Rs.)**
Land and Buildings	1,20,000
Cash in Hand	25,000
Closing inventory	32,000
Plant and Machinery	48,000
Motor car	61,000
Investments	44,000
Accounts Receivable	5,000
Share Capital: 1200 8% Preference Shares of Rs. 100 each	1,20,000
9000 Equity Shares of Rs. 10 each	90,000
9% Debentures	50,000
Provision for Depreciation on Motor Car	3,200
Provision for Depreciation on Plant and Machinery	2,400
Retained Earnings (as on 1st April 2019)	42,000
Accounts Payable	7,500
Bank Overdraft	2,600

You are required to ascertain the net profit of the current period ending 31st March 2020 and prepare a Balance sheet of Pratap Clothing House as on 31st March 2020. Also classify the balance sheet items under relevant heads.

8. The following balances are taken from the books of Athena Ltd. As on 31st March 2021. You are required to prepare a Balance sheet and Profit and Loss account based on this information.

Depreciation	5,000
Wages	25,000
Purchases of raw material	50,000
Sales	1,00,000
Rent of Building	3,000
Purchase returns	5,000
Sales returns	1,000
Interest expense	2,000
Fire Insurance	2,000
Miscellaneous expenses	5,000
Interest received on deposits	2,000
Cash	15,000
Bank deposits	20,000
Closing stock of inventory	10,000
Buildings	90,000
Land	10,000
Advance tax paid	5,000
Accounts receivable	20,000
Accounts payable	19,500
Long term loan from bank	50,000
Share Capital	75,000
Reserves and Surplus (Net profit)	**?**
Tax payable @ 20%	**?**

Also, find the net profit of Athena Ltd for the year ending 31st March 2021 and compute the amount of tax payable @ 20% on profits before tax.

ANSWERS TO ACTIVITIES

Activity 3.4

1. (i) F; (ii) T; (iii) F; (iv) T; (v) T; (vi) F

2. **Assets Liabilities Owner's equity**

   (i) Increase – No effect – Increase

   (ii) Increase – Increase – No effect

   (iii) Decrease – Decrease – No effect

   (iv) Decrease – No effect – Decrease

Activity 3.5

1. a) liquidity
   b) going-concern concept
   c) creditors
   d) owner's Equity
   e) amortization
   f) foot-notes
2. Following transactions would result in the decrease of owner's equity:
   a) Drawings of cash from the business

b) Net loss incurred during an accounting period

c) Loss of a fixed asset because of fire.

Activity 3.1

1. a) Revenue, expenses

b) Revenue, expenses

c) 31st March 2020

d) Revenue

e) next

f) indirect/non-operating expense

Activity 3.2

1.

A	B
Raw material	Cost of goods sold
Interest received on investments	Non-operating revenue
Dividends received from shares	Non-operating revenue
Wages to workers	Cost of goods sold
Carriage outwards	Selling and distribution expenses
Carriage inwards	Cost of goods sold
Salary to office staff	Administrative expenses
Rent of office	Administrative expenses
Power and Fuel	Cost of goods sold
Selling agents' commission	Selling and distribution expenses
Audit fee	Administrative expenses
Legal fee	Non-operating expense
Advertising	Selling and distribution expenses
Municipal taxes	Non-operating expense
Interest expense on loan	Non-operating expense
Provision for Income Tax	Non-operating expense
Profit on sale of furniture	Non-operating revenue
Sales revenue	Operating revenue
Sales discount	Selling and distribution expense
Purchase returns	Cost of goods sold

2. a) authorised capital

b) land

c) profit and loss account

d) debited

e) an intangible

f) liability

g) salvage value

h) Last in first out (LIFO)

Activity 3.3

1. (i) T; (ii) F; (iii) F; (iv) T; (v) T; (vi) T

2.

Items	IS or BS or Both	Head of classification/account
Sale of services revenue	IS	Trading account
Office expenses	IS	P&L Account
Marketing expense	IS	P&L Account
Factory Fuel and water charges	IS	Trading account
Advance salary paid	BS	Current Assets
Income received in Advance	BS	Current liability
Closing Stock	Both	Trading Account; Current Assets
Outstanding rent	Both	P&L Account; Current liability
Office equipment	BS	Fixed Asset
Accounts receivable	BS	Current Asset
Provision for Taxes	Both	P&L Account; Current liability
Profit on sale of Investments	IS	P&L Account
Preliminary expenses of company	BS	Fictitious Asset

3.14 FURTHER READINGS

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UNIT 4 PREPARATION OF FINAL ACCOUNTS OF A COMPANY

Objective

After studying this unit, you should be able to:

- Discuss the applicability of various provisions in the preparation of the financial statement
- Understand the structure and preparation of Profit and Loss Statement of a company
- Understand the presentation and disclosure of company's Balance Sheet
- Understand the structure and preparation of Cash Flow Statement

Structure

4.1 Introduction

4.2 Schedule III of the Companies Act, 2013

4.3 General Instructions for the preparation of Financial Statement

4.4 Profit and Loss Statement Part II of Schedule III

4.5 Balance Sheet Part I of Schedule III

4.6 Cash Flow Statement

4.7 Statement of changes in Equity

4.8 Self Assessment Questions

4.1 INTRODUCTION

Companies are required to prepare their final accounts are per the provisions of the Companies Act 2013. They should prepare and keep the books of accounts of every financial year at their' registered office which gives a true and fair view of the state of affairs of a company. Companies should keep the books of accounts on an accrual basis and according to the double-entry system of accounting.

As per Section 129 of the act, at the time of the company's annual general meeting, it is mandatory for the board of directors to lay down the financial statements before the company. The financial statements includes –

I. Profit and loss statement

II. Balance sheet

III. Cash flow statement

IV. Statement of changes in Equity

V. Notes to accounts

Note – Cash flow statement is not a part of financial statements in case of One Person Company.

Final accounts must give a true and fair view of a company at the end of the financial year. Further, Special acts are applicable for insurance, banking, electricity supply or any other class of companies to prepare the financial statements, while in case of all other companies, balance sheet and profit & loss statement is prepared as per Part I and Part II of Schedule III.

It is mandatory for the companies to comply with the accounting standards as notified by the Central Government from time to time.

4.2 SCHEDULE III OF COMPANIES ACT, 2013

The companies must prepare and present their final accounts as per the Schedule III of the Company Act, 2013. The Schedule was formulated in order to keep pace with changing economic philosophies leading to privatisation, globalisation and subsequent desired changes in corporate financial reporting practices. The several new features of Schedule III are as follows –

- Vertical format of presenting the Balance Sheet items and their classification into current and non-current heads.
- Vertical format of profit and loss statement with classification of expenses based on nature.
- Elimination of the concept of "Schedules" and such information is now furnished in "Notes to accounts"
- It does not contain any specific disclosure for items included in Schedule VI under the head, "Miscellaneous Expenditure."
- Debit balance of profit and loss statement will be disclosed as a negative figure under "Reserves and Surplus" head.
- Preparation of cash flow statement as per AS-3.
- The Schedule gives prominence to AS in case of any conflict between AS and Schedule.

4.3 GENERAL INSTRUCTIONS FOR THE PREPARATION OF FINANCIAL STATEMENTS

- Schedule III sets provides minimum requirements for disclosure on the face of the Balance Sheet, and the Statement of Profit and Loss (herein after referred to as "Financial Statements") and Notes.
- This implies that new line items or sub-items can be added or substituted in the Financial Statements when such presentation is:
    - Relevant to an understanding of the company's financial position
    - To meet industry/sector-specific disclosure requirements
    - When required for compliance when statutory changes are made especially in case of the amendments to the Companies Act or under the Accounting Standards.

- Where compliance with the requirements of the Act, including Accounting Standards as applicable to the companies, require any change in treatment or disclosure, including addition, amendment, substitution or deletion in the head or sub-head or any changes, interest, in the financial statements or statements forming part thereof, the same shall be made, and the requirements of this Schedule shall stand modified accordingly.
- The disclosure requirements specified in this Schedule are in addition to and not in substitution of the disclosure requirements specified in the Accounting Standards prescribed under the Companies Act, 2013. Additional disclosures specified in the Accounting Standards shall be made in the notes to accounts or by way of additional statements unless required to be disclosed on the face of the Financial Statements. Similarly, all other disclosures as required by the Companies Act shall be made in the notes to accounts in addition to the requirements set out in this Schedule.
- Notes to accounts shall contain information in addition to that presented in the Financial Statements and shall provide where required
    - Narrative descriptions or disaggregation of items recognised in those statements; and
    - Information about items that do not qualify for recognition in those statements.
- Each item on the face of the Balance Sheet and Statement of Profit and Loss shall be cross-referenced to any related information in the notes to accounts. In preparing the Financial Statements, including the notes to accounts, a balance shall be maintained between providing excessive detail that may not assist users of financial statements and not providing necessary information as a result of too much aggregation.
- Depending upon the turnover of the company, the figures appearing in the Financial Statements may be rounded off as given below: –

S.No.	Turnover	Rounding off
1	less than one hundred crore rupees	To the nearest hundreds, thousands, lakhs or millions, or decimals thereof.
2	one hundred crore rupees or more	To the nearest lakhs, millions or crores, or decimals thereof

- Once a unit of measurement is used, it shall be used uniformly in the Financial Statements.
- Except in the case of the first Financial Statements laid before the company (after its incorporation), the corresponding amounts (comparatives) for the immediately preceding reporting period for all items shown in the Financial Statements, including notes, shall also be given.
- For this Schedule, the terms used herein shall be as per the applicable Accounting Standards.

4.4 PROFIT & LOSS STATEMENT – PART II OF SCHEDULE-III

Particulars		Note No.	Figures for the current reporting period		Figures for the previous reporting period	
I.	Revenue from operations			xxx		xxx
II.	Other income			xxx		xxx
III.	Total Revenue(I+II)			xxx		xxx
IV.	Expenses:			xxx		xxx
	Cost of materials consumed			xxx		xxx
	Purchases of Stock-in-Trade			xxx		xxx
	Changes in inventories of Finished goods, Work-in-Progress and Stock-in-Trade			xxx		xxx
	Employee benefits expense			xxx		xxx
	Finance costs			xxx		xxx
	Depreciation and Amortisation expense			xxx		xxx
	Other expenses			xxx		xxx
Total expenses				xxx		xxx
V. Profit before exceptional and extraordinary items and tax(III-IV)				xxx		xxx
VI. Exceptional items				xxx		xxx
VII. Profit before extraordinary items and tax (V-VI)				xxx		xxx
VIII. Extraordinary Items				xxx		xxx
IX. Profit before tax (VII-VIII)				xxx		xxx
X. Tax expense:						
(1)Current tax			xxx		Xxx	
(2)Deferred tax			xxx	xxx	Xxx	xxx
XI. Profit(Loss) for the period from continuing operations (VII-VIII)				xxx		xxx
XII. Profit/(Loss) from discontinuing operations				xxx		xxx
XIII. Tax expense of discontinuing operations				xxx		xxx

4.5 BALANCE SHEET–PART I OF SCHEDULE-III

- **Assets** are the resources controlled by the enterprise due to past events from which future economic benefits are expected to flow to the enterprise.
- **Liabilities** are the obligation of an enterprise arising from the past event, the settlement of which leads to an outflow of resources embodying economic benefits,
- **Equity** is the residual interest in the interest of an enterprise after deducting all the liabilities.

Particulars	**Note No.**	**Figures as at the end of current reporting period**	**Figures as at the end of the previous period**
1	2	3	4
I. EQUITY AND LIABILITIES			
(1) Shareholder's funds			
(a) Share capital			
(b) Reserves and surplus			
(c) Money received against share warrants			
(2) Share application money pending allotment			
(3) Non-current liabilities			
(a) Long-term borrowings			
(b) Deferred tax liabilities (net)			
(c) Other Long-term liabilities			
(d) Long-term provisions			
(4) Current liabilities			
(a) Short-term borrowings			
(b) Trade payables			
(c) Other current liabilities			
(d) Short-term provisions			
TOTAL			
II. ASSETS			
(1) Non-current assets			
(a) Fixed Assets			
(i) Tangible assets			
(ii) Intangible assets			
(iii) Capital work-in-progress			
(iv) Intangible assets under development			
(b) Non-current investments			
(c) Deferred tax assets (net)			
(d) Long-term loans and advances			

(e) Other non-current assets **(2) Current assets** (a) Current investments (b) Inventories (c) Trade receivables (d) Cash and cash equivalents (e) Short-term loans and advances (f) Other current assets			

Some items are to be explained in the Notes to Accounts as follows:

A. Share Capital

For each class of share capital following points is to be kept in mind:

i) The number and amount of shares authorised.

ii) The number of shares which are issued subscribed and fully paid and which are issued, subscribed but not fully paid.

iii) The par value per share.

iv) Shares outstanding at the beginning and at the end of the reporting period should be reconciled.

v) Calls unpaid.

vi) Forfeited shares.

B. Reserves and Surplus

Reserves and surplus can be distributed among the following sub-heads:

i) Capital reserves

ii) Capital redemption reserves

iii) Securities Premium

iv) Debenture Redemption reserve

v) Revaluation reserve

vi) Surplus; the balance as per profit and loss statement

vii) Other reserves(specify the nature and purpose)

C. Long term Borrowings

Long term borrowings can be classified under the following sub-heads:

i) Bonds/Debentures

ii) Term loans

iii) Deferred payment liabilities

iv) Deposits

v) Long term maturities of finance lease obligations

vi) Loans and advances from related parties

vii) Other loans and advances(specify nature)

D. Long Term Provisions

These can be classified as follows:

i) Employee benefits provision like gratuity, provident fund etc.

ii) Other provisions (specify the nature)

E. SHORT TERM BORROWINGS

Short term borrowings can be classified among the following sub-heads:

i) Loans repayable on demand

ii) Loans and advances from related parties

iii) Deposits

iv) Other loans and advances(specify the nature)

F. Other Current Liabilities

Some of the other current liabilities can be grouped asunder:

i) Interest accrued but not/ and due on borrowings

ii) Income received in advance

iii) Unpaid dividends

iv) Applicationmoneyreceivedforallotmentofsecuritiesanddueforrefundandinterestaccruedthereon

v) Other current liabilities(specify the nature)

G. Tangible Assets

Tangible assets can be classified as follows:

i) Land

ii) Buildings

iii) Plant and Equipment

iv) Furniture and Fixtures

v) Vehicles

vi) Office equipment

vii) Others (specify the nature)

A detailed report showing additions, disposals, acquisitions through business combinations and other adjustments and amounts related to depreciation, impairment losses, revaluation etc., should be provided for each class of asset.

H. Intangible Assets

Intangible assets can be classified as follows:

i) Goodwill

ii) Brands/trademarks

iii) Computer software

iv) Mining rights

v) Publishing titles

vi) Copyrights, patents and other intellectual property rights, services and operating rights

vii) Licence and franchise

viii) Recipes, models, designs, formulae and prototypes

ix) Others (specify the nature)

A detailed report showing additions, disposals, acquisitions through business combinations and other adjustments and amounts related to depreciation, impairment losses, revaluation etc., should be provided for each class of asset.

I. Non-Current Investments

Investments can be classified as under:

i. Investments in property
ii. Investments in equity instruments
iii. Investments in preference shares
iv. Investments in governments or trust securities
v. Investments in debentures or bonds
vi. Investments in mutual funds
vii. Investments in partnership firms
viii. Other non-current investments(specify the nature)

J. LONG TERM LOANS AND ADVANCES

It can be classified under the following sub-groups:

i. Capital advances
ii. Security deposits
iii. Loans and advances to related parties
iv. Other loans and advances(specify nature)

The above shall also be sub-classified as follows:

i. Secured, considered goods
ii. Unsecured, considered goods
iii. Doubtful

K. Current Investments

It can be classified as follows:

i. Investments in equity instruments
ii. Investments in preference shares
iii. Investments in government or trust securities
iv. Investments in bonds or debentures

v. Investments in mutual funds
vi. Investments in partnership firms
vii. Other investments(specify the nature)

L. Inventories

Inventories can be classified as:

i. Raw materials
ii. Work-in-progress
iii. Stores and spares
iv. Finished goods
v. Loose tools
vi. Stock in trade
vii. Goods in transit
viii. Others(specify the nature)

M. Cash and Cash Equivalents

The following head can be classified as follows:

i. Balances with banks
ii. Cheques, drafts in hand
iii. Cash in hand
iv. Others(specify the nature)

Illustration 4.1

The following is the Trial Balance of Alpha Limited as on 31.3.20X2:

(Figures in`'000)

	Debit		**Credit**
Land at cost	4400	Equity Capital(Shares of Rs. 10each)	6000
Plant& Machinery at cost	15400	10%Debentures	4000
Trade Receivables	1920	General Reserve	2600
Inventories(31.3.X2)	1720	Profit& Loss A/c	1440
Bank	400	Securities Premium	800
Adjusted Purchases	6400	Sales	14000
Factory Expenses	1200	Trade Payables	1040
Administration Expenses	600	Provision for Depreciation	3440
Selling Expenses	600	Suspense Account	80
Debenture Interest	400		
Interim Dividend Paid	360		
Total:	33,400	Total:	33,400

Additional Information:

(i) The authorised share capital of the company is 8,00,000 shares of Rs. 10 each.

(ii) The company, on the advice of an independent valuer, wishes to revalue the land at Rs. 72,00,000.

(iii) Declared final dividend @10% on2nd April, 20X2.

(iv) Suspense account of Rs. 80,000 represents cash received for the sale of some of the machinery on 1.4.20X1. The cost of the machinery was Rs.2,00,000 and the accumulated depreciation thereon being Rs. 1,60,000.

(v) Depreciation is to be provided on plant and machinery at 10% on cost.

You are required to prepare Alpha Limited's Balance Sheet as on 31.3.20X2 and Statement of Profit and Loss with notes to accounts for the year ended 31.3.20X2 as per Schedule III. Ignore previous years' figures & taxation.

Solution

Balance Sheet

As at 31st March 20X2

Particulars		NoteNo.	(`in000)
Equity and Liabilities			
1.	**Shareholders' funds**		
	a Share capital	1	6000
	b Reserves and Surplus	2	10600
2.	**Non-Current liabilities**		
	a Long term borrowings	3	4000
3.	**Current liabilities**		
	a Trade Payables		1040
	Total		**21640**
Assets			
1.	**Non-current assets**		
	A PPE(Property, Plant& Equipment)	4	17600
2.	**Current assets**		
	A Inventories		1720
	B Trade receivables		1920
	C Cash and bank balances		400
	Total		**21640**

Profit and Loss Statement

For the period ending 31st March, 20X2

Particulars	Notes	(`in000)
I. Revenue from operations		14000
II. Other Income	5	40
III **Total Revenue**		**14040**
IV Expenses:		
Purchases		6400
Finance costs	6	400
Depreciation (10% of 15,200)		1520
Other expenses	7	2400
Total Expenses		10720
V. Profit (Loss) for the period (III – IV)		3320

Notes to accounts

				(`in000)
1.	**Share Capital**			
	Equity share capital			
	Authorised			
	800,000 shares of Rs. 10each			8000
	Issued& subscribed & called up			
	600,000sharesof Rs. 10each			6000
2.	**Reserves and Surplus**			
	Securities Premium Account			800
	Revaluation reserve (7200–4400)			2800
	General reserve			2600
	Profit& loss Balance			
	Opening balance	1440		
	Profit for the period	3320	4760	
	Less: Appropriations			
	Interim Dividend		(360)	4400
				10600
3.	**Long term borrowing**			
	10%Debentures			4000
4.	**PPE**			
	Land			

	Opening balance	4400	
	Add: Revaluation adjustment	2800	
	Closing balance		7200
	Plant and Machinery		
	Opening balance	15,400	
	Less: Disposed off	(200)	
		15,200	
	Less: Depreciation (3440-160+1520)	(4800)	
	Closing balance		10,400
	Total		17,600
5.	**Other Income**		
	Profit on sale of machinery:		
	Sale value of machinery	80	
	Less: Book value of machinery (10-8)	(40)	40
6.	**Finance costs**		
	Debenture interest		400
7.	**Other expenses:**		
	Factory expenses	1200	
	Selling expenses	600	
	Administrative expenses	600	2400

Note: Dividend declared on 2nd April 20X2 will be accounted for in the next financial year.

4.6 CASH FLOW STATEMENT

The cash flow statement is prepared in accordance with the provisions of AS-3. It provides information about the cash flow position of an enterprise. Further, the statement also identifies the cash from operating, investing and financing activities. The purpose of the statement is to explain the cash movement between two points of time. The sources of cash include the issue of shares, debentures, raising of long term-loan, sale of an investment, sale of fixed assets and cash from operations. In contrast, application of cash includes redemption of shares, debentures, repayment of a long term loan, purchase of fixed assets or investment, payment of tax, dividend and net operating loss.

Note – Cash includes cash in hand, demand deposits with banks, short-term liquid investment, and securities with short-term maturity (less than three months from the date of acquisition).

The cash flow statement includes three major elements, namely –

a. Cash Flow from operating activities – These are the principal revenue generating activities of an enterprise. Positive cash flow from operating activities helps an enterprise maintain its operating capability, pay dividends, repay loans, make new investments, etc. It also provides valuable information about financing through working capital.

b. Cash flow from investing activities – It deals with the acquisition and disposal of long-term assets and other investments. In other words, it represents the extent to which expenditures have been made for resources intended to generate future income and cash flows.

c. Cash flow from financing activities – These are the activities that result in changes in the size and composition of owner's and borrowed capital. These are useful in predicting claims on future cash flows by providers of capital to the entity. Examples include cash proceeds from the issue of equity shares, loans, debentures, etc.

Cash Flow Statement Format

Particulars	**Amt.**	**Amt.**
Net profit before Tax and extraordinary Items	xxx	
Cash flow from Operating activities		
Add: Non-cash and non-operating Items which have already been debited to Profit and Loss Account like:		
Depreciation	xxx	
Amortisation of intangible assets	xxx	
Provision for tax	xxx	
Loss on the sale of Long-term Investments	xxx	
Loss on the sale of Fixed assets	xxx	
Dividend paid	xxx	xxx
Less: Non-cash and Non-operating Items which have already been credited to Profit and Loss Account like:		
Profit on sale of fixed assets	(xxx)	
Profit on sale of Long-term investment	(xxx)	(xxx)
Operating profit before Working Capital changes (A)		xxx
Changes in working capital:		
Add: Increase in current liabilities	xxx	
Decrease in current assets	xxx	xxx
Less: Increase in current assets	(xxx)	
Decrease in current liabilities	(xxx)	(xxx)
Net increase/decrease in working capital (B)		xxx

Cash generated from operations (C) = (A+B)		xxx
Less: Income tax paid (Net tax refund received) (D)		(xxx)
Cash flow from before extraordinary items (C-D) = (E)		xxx
Adjusted extraordinary items (+/–) (F)		xxx
Net cash flow from operating activities (E+F) = (G)		**xxx**
Cash flow from Investing activities		
Proceeds from the sale of fixed assets	xxx	
Proceeds from the sale of investments	xxx	
Purchase of shares/debentures/fixed assets	(xxx)	
Net cash from investing activities (H)		**xxx**
Cash flow from Financing activities		
Proceeds from the issue of shares	xxx	
Proceeds from issue of debentures	xxx	
Payment of dividend	(xxx)	
Net cash flow from financing activities (I)		**xxx**
Net increase in cash and cash equivalents (G+H+I) = (J)		xxx
Cash and cash equivalents and the beginning of the period (K)		xxx
Cash and cash equivalents and the end of the period (J+K)		**xxx**

Illustration 4.2

Raymond Ltd provides the following information at the year-end, March31, 20X1:

Particulars	**Rs.**	**Rs.**
Sales		1,39,600
Cost of Goods Sold		(1,04,000)
		35,600
Operating Expenses		
(including Depreciation Expense of Rs. 74,00)		(29,400)
		6,200
Other Income/(Expenses):		
Interest Expense paid	(4,600)	
Interest Income received	1200	
Gain on Sale of Investments	2,400	
Loss on Sale of Plant	(600)	
		(1600)

		4600
Income tax		(1400)
		3,200

Information available:

	31st March 20X1	**31st March 20X0**
	Rs.	Rs.
Plant	1,43,00	10,1000
Less: Accumulated Depreciation	(20,600)	(13,600)
	1,22,400	87,400
Investments (Long term)	23,000	25,400
Inventory	28,800	22,000
Trade receivables	9,400	11,000
Cash	9,200	3,000
Prepaid expenses	200	1000
Share Capital	93,000	63,000
Reserves and surplus	28,000	26,400
Bonds	59,000	49,000
Trade payables	10,000	8,600
Outstanding liabilities	2400	1800
Income taxes payable	600	1000

Analysis of selected accounts and transactions during20X0-X1

1. Purchased investments for Rs. 15,600.
2. Sold investments for Rs. 20,400. These investments cost Rs. 18,000.
3. Purchased plant assets for Rs.24000.
4. Sold plant assets that cost Rs. 2000 with accumulated depreciation of Rs. 400 for Rs.1000.
5. Issued Rs. 20000 of bonds at face value in exchange for plant assets on31st March, 20X1.
6. Repaid Rs.10000 of bonds at face value at maturity.
7. Issued 3000 shares of Rs. 10each.
8. Paid cash dividends Rs. 1600.

Prepare Cash Flow Statement as per AS-3(Revised), using the indirect method.

Solution

Raymond Ltd.

Cash Flow Statement

For the year ending 31st March, 20X1

Particulars	**Rs**	**Rs.**
Cash flows from operating activities		
Net profit before taxation	4600	
Adjustments for:		
Depreciation	7400	
Gain on sale of investments	(2400)	
Loss on sale of plant assets	600	
Interest expense	4600	
Interest income	(1200)	
Operating profit before working capital changes		13,600
Decrease in trade receivables	1600	
Increase in inventory	(6800)	
Decrease in prepaid expenses	800	
Increase in trade payables	1400	
Increase in outstanding liabilities	600	11,200
Cash generated from operations		
Income taxes paid*	(1800)	
Net cash generated from operating activities		**94,00**
Cash flows from investing activities		
Purchase of plant	(24000)	
Sale of plant	1000	
Purchase of investments	(15600)	
Sale of investments	20400	
Interest received	1200	
Net cash used in investing activities		**(17,000)**
Cash flows from financing activities		
Proceeds from issuance of share capital	30000	
Repayment of bonds	(10000)	
Interest paid	(4600)	
Dividends paid	(1600)	
Net cash from financing activities		**13,800**
Net increase in cash and cash equivalents		62,00
Cash and cash equivalents at the beginning of the period		3,000
Cash and cash equivalents at the end of the period		92,00

***Working Note:**

Income taxes paid:	
Income tax expense for the year	1400
Add: Income tax liability at the beginning of the year	1000
	2400
Less: Income tax liability at the end of the year	(600)
	1800

4.7 STATEMENT OF CHANGE IN EQUITY

- It is the reconciliation between the opening and closing balance of shareholder's equity.
- The statement summarises the transactions related to the shareholder's equity over an accounting period.
- It records movement in retained earnings, other reserves and changes in share capital.
- Statement of changes in equity is to be presented, and it includes the following:
  - Reconciliation of the opening and closing balances of equity, describing changes in detail.
  - Details of comprehensive income for the accounting period.
  - Details of changes and the impact when components of equity are restated
  - applied retrospectively in accordance with the IAS/Ind-AS 8.
  - Comprehensive income is the incomes listed after the net income on the income statement.

4.8 SELF-ASSESSMENT QUESTIONS

1. State under which head these accounts should be classified in Balance Sheet, as per Schedule III of the Companies Act, 2013:
   a. Unpaid matured debenture and interest accrued thereon.
   b. Uncalled liability on shares and other partly paid investments.
   c. Share option outstanding account.
   d. Calls unpaid.
   e. Money received against share warrant.
   f. Share application money received in excess of issued share capital.
2. From the following particulars furnished by Alpha Ltd., prepare the Balance Sheet as on 31stMarch 20X1asrequired by Part I, Schedule III to

the Companies Act, 2013.

Particulars		Debit	Credit
Equity Share Capital (Face value of Rs. 100each)			5,00,000
Call in Arrears		500	
Land& Building		2,75,000	
Plant& Machinery		2,62,500	
Furniture		25,000	
General Reserve			1,05000
Loan from State Financial Corporation			75,000
Inventory:			
Raw Materials Finished Goods	25,000		
	1,00,000	1,25,000	
Provision for Taxation			64,000
Trade receivables		1,00,000	
Short term Advances		21,350	
Profit& Loss Account			43,350
Cash in Hand		15,000	
Cash at Bank		1,23,500	
Unsecured Loan			60,500
Trade payables (for Goods and Expenses)			80,000
Loans & advances from related parties			20,000
		9,47,850	9,47,850

The following additional information is also provided:

(i) 10,000Equity shares were issued for consideration other than cash.

(ii) Trade receivables of Rs. 26,000aredueformorethan6months.

(iii) The cost of the Assets were:

Building Rs. 30,0,000, Plant&MachineryRs.35,0,000 and Furniture Rs. 31,250

(iv) The balance of Rs. 75,000 in the Loan Account with State Finance Corporation is inclusive of Rs.3750 for Interest Accrued but not due. The loan is secured by hypothecation of Plant &Machinery.

(v) Balance at Bank includes Rs. 1000 with Omega Bank Ltd., which is not a Scheduled Bank.

(vi) Transfer Rs. 2,000 to general reserve is proposed by the Board of directors.

(vii) The Board of directors declared a dividend of 5% on the paid-up capital on 2nd April, 20X1.

3. From the following Balance Sheets and information, prepare the cash

flow statement of Ryan ltd. by indirect method for the year ended 31st March, 20X1:

		Particulars	*Notes*		*31st March 20X1 Rs.*	*31st March 20X0 Rs.*
		Equity and Liabilities				
1		**Shareholders' funds**				
	A	Share capital	1		60,000	70,000
	B	Reserves and Surplus	2		42,000	30,000
2		**Non-current liabilities**				
		Long term borrowings	3		20,000	-
3		**Current liabilities**				
	A	Trade Payables			11,500	11,000
	B	Other current liabilities	4		3,000	8,000
	C	Short term provision(provision for tax)			9,500	6,000
		Total			**1,46,000**	**1,25,000**
		Assets				
1		**Non-current assets**				
	A	Property, plant and Equipment	5		91,500	70,000
	B	Non-Current Investments			50,000	8000
2		**Current assets**				
	A	Inventories			9500	9000
	B	Trade receivables			25,000	22,500
	C	Cash and Cash equivalents			5000	9000
	D	Other Current assets			10,000	6500
		Total			**146000**	**125000**

Notes to Accounts

No.			**31st March, *20X1***	**31st March, *20X0***
1.	**Share capital**			

	Equity share capital		60000	50000
	10%RedeemablePreferencesharecapital			
			--	20000
	Total		**60000**	**70000**
2	**Reserves and Surplus**			
	Capital redemption reserve		10000	-
	Capital reserve		7000	-
	General reserve		15000	2,5000
	Profit and Loss account		10000	5000
	Total		**42000**	**3,0000**
3	**Long term borrowings**			
	9%Debentures		20000	--
4.	**Other current liabilities**			
	Dividend payable		-	6000
	Liabilities for expenses		3000	2000
	Total		**3000**	**8000**
5	**Property, plant and equipment**			
	Plant and machinery		7,6500	5,0000
	Land and building		1,5000	2,0000
	Net carrying value		**9,1500**	**7,0000**

Additional Information:

(i) A piece of land has been sold out for Rs. 15000 (Cost – Rs. 1,2000), and the balance land was revalued. Capital Reserve consisted of profit on revaluation of land.

(ii) On1st April,20X0, a plant was sold for Rs.9000(Original Cost–Rs. 7000and

W.D.V. – Rs. 5000) and Debentures worth Rs. 10,000 were issued at par as part consideration for plant of Rs. 40500acquired.

(iii) Part of the investments (Cost–Rs. 5000) was sold for Rs. 7000.

(iv) Pre-acquisition dividend received Rs. 500was adjusted against the cost of investment.

(v) Interim dividend was declared and paid @15%during the current year.

(vi) Income-tax liability for the current year was estimated at Rs. 13500.

Depreciation@15%has been charged on Plant and Machinery, but no depreciation has been charged on Building.

UNIT 5 CASH FLOW STATEMENT

Objectives

After you have studied this unit, you should be able to:

- Understand the purpose and preparation of cash flow statement;
- Distinguish between operating activities, investing activities and financing activities;
- Prepare the cash flow statement using the direct method;
- Prepare the cash flow statement using the indirect method.

Structure

5.1 Introduction

5.2 Importance and objectives of cash flow statement

5.3 Cash and cash equivalent

5.4 Types of activities and cash flow classification

5.5 Preparation of cash flow statement and illustrations

5.6 Activity: Cash flow statement of NTPC Ltd

5.7 Summary

5.8 Keywords

5.9 Self-assessment questions

5.10 Further readings

5.1 INTRODUCTION

The Cash flow statement is one of the three most important financial statements. It shows the inflows and outflows of cash and cash equivalents over a period of time. The users of financial information give substantial importance to this statement as it acts as a tool to study the strength and long-term future outlook of the company. It also takes into account various activities of an enterprise.

The cash flow statement of an enterprise provides information about the historical changes in cash and cash equivalents by classifying all cash flows derived from operating, investing and financing activities. The revised Accounting Standard -3 (AS-3) made it mandatory for all listed companies to prepare and present an annual cash flow statement along with other financial statements.

This unit discusses and explains the method of preparing a cash flow statement for an accounting period.

Features of Cash Flow Statement

Features are mentioned as follows:

1. A cash flow statement is a periodic statement.
2. It is a statement of change in the financial position on a cash basis.
3. It shows the movement of cash and explains the reasons for changes in cash position between two balance sheet dates.
4. It does not match cost against revenue.
5. It shows the inflow and outflow of cash and cash equivalents from various activities.
6. It helps assess the company's capability to generate cash and cash equivalents and channels to utilise those cash flows.
7. It provides information on inflow and outflow of cash and cash equivalents from various activities of a company under various heads, i.e. operating, investing and financing activities.

Preparation of Cash Flow Statement

Following basic documents or data are required to prepare the statement:



Figure 5.1: Data used for Cash Flow Statement

5.2 OBJECTIVES AND BENEFITS OF CASH FLOW STATEMENT

Objectives of Cash Flow Statement

The objectives of the cash flow statement are as follows:

- To make future financial policies.
- To identify the extent of major expenses.
- To devise the cash requirement for a period.
- To find reasons for the net cash inflows or outflows.
- To predict the financial strength of the company.

Benefits of Cash Flow Statement

Benefits are mentioned as follows:

- **Highlights liquidity position**

  Liquidity means one's ability to pay the obligation on time or as soon as it becomes due. A cash flow statement helps in determining the liquidity position of the business. It shows the cash position and gives an idea of the cash payments made in the course of business of the company, thus, confirming the liquidity position of the same.

- **Helps in cash management**

  A cash flow statement helps in the management of cash flow. With the help of cash flow statements, companies can estimate both future cash receipts and payments. With the help of this statement, it is easier for companies to make future plans related to cash without compromising on liquidity.

- **Maintain optimal cash balance**

  Another benefit of a cash flow statement is that it facilitates the company to maintain an optimal cash balance. It enables businesses to verify the possible idle, excess or shortage of cash. After arranging for the required Cash position, the companies can invest the excess cash or borrow funds in case of any deficit.

- **Comparability**

  A cash flow statement facilitates the accurate comparison of the cash-based performance of different companies as it uses the same accounting treatment for the same transactions and events. Companies can, therefore, adjust their cash flows as per the industry norms or modify them as per the structure of the industry leaders.

- **Indicates future**

  One of the significant benefits of the cash flow statement is that historical cash flow information is taken as an adequate indication of future cash flows. Past information on cash amount, their timing and certainty of their arrival may be used for the forecasting of the future cash flows. It helps in confirming the accuracy of past assessments too.

5.3 CASH AND CASH EQUIVALENTS

Cash and Cash Equivalents

As per AS-3[1], *Cash comprises cash in hand and demand deposits with banks.* Cash equivalents means short-term highly liquid investments that are readily convertible into known amounts of cash and *subject to an insignificant risk of changes in value.*

Cash equivalents have the following features:

[1] https://www.mca.gov.in/Ministry/notification/pdf/AS_3.pdf

- Cash equivalents can be readily converted into cash.
- These are held to meet short-term cash requirements rather than for investments purposes.
- Cash equivalents have a short term maturity, normally, three months or less.
- Cash equivalents are highly liquid and easily sellable in the market.
- Buyers of cash equivalents are easily accessible.

Marketable securities and money market instruments are considered cash equivalents. Generally, it includes commercial paper, treasury bills, short-term government bonds etc. with a maturity date of three months or less.

Cash Flows

A company creates value for the shareholders by generating positive cash flows for them. As per AS-3[1], *cash flows are inflows and outflows of cash and cash equivalents,* i.e. cash flows is the amount of cash and cash equivalents move in and out of a business. Cash flow generated in a company adds to its cash reserves, which further accelerate reinvestment in the company.

5.4 TYPES OF ACTIVITIES AND CASH FLOW CLASSIFICATION

As per AS-3[1], these activities can be put into three categories:

- Operating activities
- Investing activities, and
- Financing activities

This classification shows the cash flows generated and used in these activities.

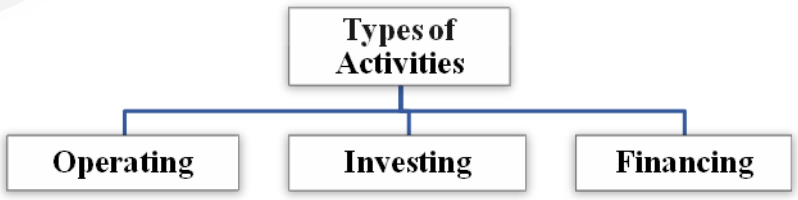


Figure 5.2 Types of Activities

Cash from Operating Activities

Operating activities comprised of the primary activities of a company. These activities create the principal revenue stream for the company. Cash flow from operating activities is the first subdivision portrayed on a cash flow statement. Cash from operations is an indicator of the internal solvency of the company.

- Cash from operating activities signifies the cash a company generates from its ongoing and regular business activities.

- These activities include routine acts of manufacturing and selling goods or a service to clients.
- It focuses only on core business activities and does not include non-core, long-term capital expenditures or investment revenues etc.
- As it considers only the core business, cash flow from operating activities is a yardstick to verify the financial status of a company.

There are two different methods to identify cash from operating activities: *the indirect method and the direct method.*

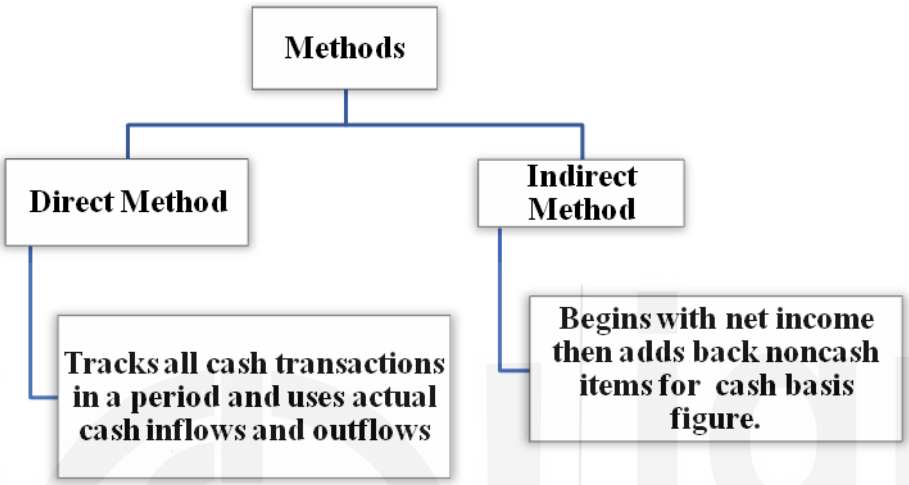

Methods
Direct Method
Indirect Method
Tracks all cash transactions in a period and uses actual cash inflows and outflows
Begins with net income then adds back noncash items for cash basis figure.

Figure 5.3 Methods to identify Cash from Operating Activities

Cash Inflows from Operating Activities

- Cash receipts from the sale of goods and the rendering of services.
- Cash receipts from royalties, fees, commissions and other revenues.

Cash Outflows from Operating Activities

- Cash payments to suppliers for goods and services
- Cash payments to employees
- Cash payment on behalf of the employees
- Cash payments for insurance premiums and claims, annuities, and other benefits.
- Cash payments or refunds of income taxes

Non-operating cash flows are clearly different from operating cash flows. For example, non-operating cash flows include taking a loan or issuing new shares and are usually non-recurring.

Cash from Investing Activities

As per AS-3, *investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents*. Investing activities are related to the purchase and sale of long-term or fixed assets of a company. These assets include land and building, machinery, furniture etc. These activities signify the extent to which expenditures are made for acquiring resources to generate future cash flows. Cash flows related to long-term investments are also known as investing activities.

Cash Inflows from Investing Activities

- Cash receipt from the disposal of fixed assets, including intangibles assets.
- Cash receipt from the disposal of intangibles assets.
- Cash receipt from the repayment of advances or loans made to third parties.
- Cash receipt from the disposal of shares, warrants or debt instruments of other enterprises other than receipts from those instruments considered as cash or cash equivalents or held for trading purposes.
- Interest received in cash from loans and advances.
- Dividend received from investments in other companies.
- Cash receipts from futures contracts, forward contracts, option contracts and swap contracts except when the contracts are held for dealing, or trading purposes, or the receipts are classified as financing activities

Cash Outflows from Investing Activities

- Cash payments to acquire fixed assets, including intangibles and capitalised research and development.
- Cash payments to acquire shares warrants or debt instruments of other enterprises other than the instruments considered to be cash equivalents or held for trading purposes.
- Cash advances and loans made to a third party (other than advances and loans made by a financial enterprise, wherein it is operating activities).
- cash payments for futures, forward, options and swap contracts except when the contracts are held for dealing or trading purposes, or the payments are classified as financing activities; and

Cash from Financing Activities

As per AS-3, *financing activities are activities that result in changes in the size and composition of the owners' capital (including preference share capital in case of a company) and borrowings of the enterprise.*

It is the part of a company's cash flow statement, which shows the flows of cash used to fund the company that involve equity, debt and dividends. It provides an insight into a company's financial strength and its capital structure. These activities are related to long-term funds or capital as cash proceeds from issue of equity shares, debentures, bank loans etc.

Cash Inflows from Financing Activities

- Cash proceeds from issuing shares or other similar instruments.
- Cash proceeds from issuing debentures, loans, bonds and other short or long-term borrowings.

Cash Outflows from Financing Activities

- Cash repayments of amounts borrowed.
- Interest paid on loans, debentures and advances.
- Dividends paid on equity and preference capital.

Sometimes, one transaction may fall into more than one different classification. For example, the purchase of shares is an operating activity for a share broker, while it is referred to as investing activity for another enterprise.

Non-cash Transactions

As per AS-3, investing and financing transactions that do not require the use of cash or cash equivalents should be excluded from a cash flow statement. Examples of such transactions are – acquisition of machinery by the issue of equity shares or redemption of debentures by the issue of equity shares.

5.5 PREPARATION OF CASH FLOW STATEMENT

Basic Structure of the Cash Flow Statement

The basic structure of the cash flow statement is presented as under:

Particulars	Amount
(A) Cash flows from operating activities	XX
(B) Cash flows from investing activities	XX
(C) Cash flows from financing activities	XX
Net increase /decrease in cash and cash equivalents (A + B + C)	XX
+ Cash and cash equivalents at the beginning	
= Cash and cash equivalents at the end	XX

Figure 5.4 Basic Structure of the Cash Flow Statement

Cash Flow from Operating Activities

Calculation of cash flow from operation is considered to be the most complex problem area while preparing the statement. As mentioned earlier, as per AS-3, a company reports these cash flows either by direct or indirect method. Detailed discussion is given below:

Direct Method

Under this method, cash receipts and cash payments are arranged and presented in the cash flow statement. The difference between cash receipts and payments is the net cash flow from operating activities. The financial statement provides the summarised data for revenue and expenses. The accrual basis of revenue and expenses are to be converted to equivalent cash receipts and payments.

Some examples of cash receipts and payments are mentioned as under:

- Cash receipts from customers/debtors
- Cash receipts of royalties, fees, commission etc
- Cash paid to suppliers
- Cash paid for purchases

- Cash paid for wages and salaries
- Cash paid for various taxes , interest etc

Cash receipt from Customers/debtors:

In a standard scenario, if a business is run on an only cash basis, the sales revenue in the income statement is as same as the cash collected from the customers. However, normally, credit sales are also made. The uncollected amount is reflected by the closing balance of debtors. To calculate the cash received from debtors, the opening balance (debtors/bills receivable) should be added to the amount of credit sales, and the closing balance should be subtracted there from.

Cash Collected from Debtors can also be calculated as follows:

Cash Collected from Debtors = Credit Sales (+) Decrease in Accounts Receivable or

(–) Increase in Accounts Receivable.

Cash paid to suppliers / Purchases

For purchases, cash payments to suppliers consider the cost of goods sold from the Profit & Loss account and others from the Balance Sheet, etc. The calculations are as follows:

Purchases = Cost of Goods Sold (+) Closing Stock (-) Opening Stock

Or

Purchases = Cost of Goods Sold (+) Increase in Stock or (-) Decrease in Stock

Or

Cash Paid to Suppliers = Purchases (+) Opening Balance of Creditors (Bills Payable)

(-) Closing Balance of Creditors (Bills Payable)

Or

Cash Paid to Suppliers = Purchases (+) Decrease in Accounts Payable or (–) Increase in

Accounts Payable

Cash Paid to Employees

The calculation for cash payments is presented as under:

Cash Paid for Wages and Salaries =

Wages and Salaries Expenses (+) Opening Balance of Outstanding Wages and Salaries (-) Closing Balance of Outstanding Wages and Salaries.

Or

Cash Paid for Wages and Salaries = **Wages and Salaries Expenses (+) Decrease in Wages and Salaries Payable or (-) Increase in Wages and Salaries Payable**

The following points should be noted:

- The sale of fixed assets and investments does not require any adjustment here.
- Bad debts, sales returns, purchases returns, discount allowed, discount received etc. require adjustment.
- Items like depreciation, amortisation of intangible assets like goodwill, debenture discount, preliminary expenses, premium on redemption of debentures and preference shares are ignored.
- Non-cash items are omitted from a statement of cash flows.

Cash Flows from Operating Activities (Direct Method)

	Amount
Cash receipts from customers	XX
(–) Cash paid to suppliers and employees	XX
= cash generated from operations	XX
(–) Income tax paid	XX
= Cash flow before extra-ordinary items	XX
(+/–) Extra-ordinary items	XX
= Net cash from operating activities	XX

Figure 5.5 Cash Flows from Operating Activities (Direct Method)

Indirect Method

In the indirect method, the net profit/loss forms the base to calculate net cash flow. Non-cash and non-operating charges put in the Profit & Loss account are added back, whereas non-cash and non-operating incomes are deducted to calculate operating profit. Adjustments are further needed in current assets and current liabilities to obtain net cash from operating activities.

Cash flows from Operating Activities (Indirect Method)

	Amount
Net profit for the year	XX
(+) Non-cash and non-operating expenses:	
● Depreciation	XX
● Goodwill written off	XX

• Provision for taxation	XX
• Preliminary expenses written off	XX
• Loss on sale of fixed assets, investment etc	XX
(-) Non-cash and non-operating incomes	
• Loss on sale of fixed assets, investment etc	
Net profit after adjustment of non-cash items	XX
(+) Increase in current liabilities	
(+) Decrease in current assets	
(-) Increase in current assets	XX
(-) Decrease in current liabilities	XX
(-) Income tax paid	XX
Cash from operating activities	XX
	XX
	XX

Figure 5.6 Cash Flows from Operating Activities (Indirect Method)

Illustration 5.1

From the following information, calculate the net cash flow from operating activities for the year ended March 31, 2020, using direct method**.**

	Amount (Rs)
Cash Sales	1,50,000
Credit Sales	75,000
Receivables collections	1,50,000
Cash Purchases	35,000
Credit Purchases	40,000
Creditors Paid	87,500
General Expenses Paid	25,000
Unpaid Expenses	30,000
Wages Paid	45,000
Outstanding Wages	15,000
Salaries Paid	55,000
Total Salaries	1,25,000
Interest Received	7,500
Income Tax Paid	14,000
Depreciation	10,000
Loss due to Fire	9,000
Insurance Claims	7,500

Solution:

	Amount (Rs)	Amount (Rs)
Cash Receipts:		
Cash Sales	1,50,000	
Receivables collections	1,50,000	3,00,000
(Less) Cash Paid to Suppliers and Employees:		
Cash Purchases	35,000	
Payment to Creditors	87,500	
Payment of wages	45,000	
Payment of Salaries	55,000	
Payment of General Expenses	25,000	2,47,500
Cash from Operations*		52,500
(Less) Payment of Income Tax		14,000
Cash Flow before Extra-ordinary items		38,500
(Add) Extra-ordinary Income:		
Insurance Claim received		7,500
Net Cash Flow from Operating Activities		46,000

***Only operating income and expenses are considered.**

Illustration 5.2

From the following Profit and Loss Account, calculate the Net Cash flow from Operating Activities using the indirect method.

Profit and Loss Account for the year ended March 31st, 2020

Dr.					**Cr.**
	Rs	**Rs**		**Rs**	**Rs**
To Opening Stock		22,500	By Sales:		
To Purchases:			Cash	42,500	
Cash	25,000		Credit	1,75,000	2,17,500
Credit	90,000	1,15,000	By Closing Stock		17,500
To Wages:					
Paid	26,000		By Dividend from Investment		5,000
Outstanding	5,000	31,000			
To Salaries					
Paid	15,000				
Outstanding	5,000	20,000			
To Rent Paid		4,000			
To Depreciation		12,500			
To Preliminary Expenses					

write-off		8,000			
To Provision of Taxation		5,000			
To Net Profit		22,000			
		2,40,000			**2,40,000**

Additional information is:

- Tax paid during the year is Rs 25,000
- The opening and closing balances of debtors are Rs 24,000 and Rs 29,000
- The opening and closing balance of creditors are Rs 22,500 and Rs 20,000

Solution:

	Amount (Rs)	**Amount (Rs)**
Net Profit		**22,000**
Add: Non-operating and Non-cash items charged to Profit &Loss A/C	12,500	
Depreciation	8,000	
Preliminary Expenses written off	5,000	25,500
Provision for Taxation		47,500
Less: **Non-operating and Non-current items credited to Profit &Loss**		
Dividend from Investment		5,000
Operating profit before working capital changes		42,500
Add: Increase in Operating Current Liabilities		
Outstanding Wages	5,000	
Outstanding Salaries	5,000	
Decrease in Operating Current Assets		15,000
Stock	5,000	
		57,500
Less: Increase in Operating Current Assets		

Debtors		7,500
Decrease in Operating Current Liabilities	10,000	50,000
Creditors		25,000
Cash Generated From Operations	5,000	
Less: Payment of Income Tax		25,000
Net Cash Flow from Operating Activities		

Cash Flow Statement

There is no specific format of cash flow statement in Accounting Standard-3 (Revised). A widely accepted format under direct method and indirect method is being provided below:

Proforma for Cash Flow Statement (under Direct Method)

Statement of .....for the period ended.....

	Amount (Rs)	**Amount (Rs)**
A. Cash flows from Operating Activities		
Cash receipts from customers		
Less: Cash paid to suppliers and employees		
Cash generated from operations		
Less: Income taxes paid		
Cash flows from operations before extra-ordinary item		
Add: Proceeds from any disaster settlement		
Net Cash Flow from Operating Activities		
B. Cash flows from Investing Activities		
Proceeds from Sale of Fixed Assets including Investments		
Less: Purchase of Fixed Assets including Investments		
Add: Interest received		
Dividend received		
Net Cash from Investing Activities		
C. Cash flows from financing activities		
Proceeds from issuance of share capital		
Proceeds from long-term borrowings		
Less: Repayments of long-term borrowings		
Redemption of Preference Shares		

Less: Interest paid Dividend paid **Net Cash from Financing Activities** **Net Increase (Decrease) in Cash and Cash Equivalents** (A + B + C) Add : **Cash and Cash Equivalents at the Beginning of Period** **Cash and Cash Equivalents at End of Period**		

Proforma for Cash Flow Statement (under Indirect Method)

Statement of .....for the period ended.....

	Amount (Rs)	**Amount (Rs)**
A. Cash flows from Operating Activities		
Net profit before tax and extra-ordinary items		
Add: Adjustments for Non-cash and Non-operating items charged		
to Profit and Loss A/c		
Depreciation		
Interest Paid		
Foreign Exchange Loss		
Loss on sale of fixed assets and Investments		
Less: Adjustments for Non-cash and Non-operating items credited		
to Profit and Loss A/c		
Interest earned		
Dividend earned		
Profit on sale of fixed assets and Investments		
Operating profit before working capital changes		
Add: Increase in Operating Current Liabilities		
Decrease in Operating Current Assets		
Less: Increase in Operating Current Assets		
Decrease in Operating Current Liabilities		
Cash generated from Operations		
Less: Income Tax Paid		

Add: Proceed from any Disaster Settlement		
Net Cash Flow from Operating Activities		
B. Cash flows from Investing Activities		
Proceeds from Sale of Fixed Assets including Investments		
Less: Purchase of Fixed Assets including Investments		
Add: Interest received		
Dividend received		
Net Cash from Investing Activities		
C. Cash flows from financing activities		
Proceeds from issuance of share capital		
Proceeds from long-term borrowings		
Less: Repayments of long-term borrowings		
Redemption of Preference Shares		
Less: Interest paid		
Dividend paid		
Net Increase (Decrease) in Cash and Cash Equivalents (A + B + C)		
Add: **Cash and Cash Equivalents at the Beginning of Period Cash and Cash Equivalents at End of Period**		

Illustration5.3

Prepare a cash flow statement of ABC Ltd on the basis of given information:

Liabilities	**2019 (in Rs)**	**2020 (in Rs)**	**Assets**	**2019 (in Rs)**	**2020 (in Rs)**
Share Capital	3,00,000	3,75,000	Land and Building	3,00,000	4,20,000
12% Debentures	1,50,000	1,20,000	Machinery	1,50,000	1,95,000
Reserve	7,5000	1,05,000	Debtors	60,000	90,000
Bills Payables	30,000	1,50,000	Stock	1,05,000	1,35,000
Outstanding Expenses	37,500	30,000	Cash	22,500	27,000
Creditors	60,000	90,000	Goodwill	15,000	3,000
Total	6,52,500	8,70,000	**Total**	6,52,500	8,70,000

Solution

Cash Flow Statement for the year ended March 31st 2020

	(Rs)	(Rs)
Cash from operating Activities		
Profit during the year*	30,000	
Add: Goodwill written off	12,000	
Increase in creditors	30,000	
Increase in bills payables	1,20,000	1,92,000
Less : Increase in debtors	(30,000)	
Increase in stock	(30,000)	
Decrease in outstanding expenses	(7,500)	(67,500)
		1,24,500
A. Cash outflow from operating activities		
Cash from investing activities	(1,20,000)	
Purchase of land and building	(45,000)	(1,65,000)45,000
Purchase of machinery		
B. Cash outflow from investing activities	75,000	4,500
Cash from Financing Activities	(30,000)	22,500
Issue of shares		27,000
Redemption of debentures		
C. Cash inflow from financing activities		
Net Increase in Cash (A+B+C)		
Add: Cash balance in the beginning of the year		
Cash balance at the end of the year		

*Change in General Reserve

Illustration 5.4

Summary of cash transactions of XYZ Ltd is extracted from their books. You are required to prepare a cash flow statement for the period ended 31st March, 2020 in accordance with the Accounting Standard- 3 (Revised).

(` in Rs ’000)

Balance as on 1st April, 2019	140
Receipts from customers	11132
Issue of shares	1200
Sale of fixed assets	512
	12984
Payments to suppliers	8188
Payments for fixed assets	920
Payments for overheads	460
Wages and salaries	276
Taxation	972
Dividends	320
Repayment of bank loans	1000
	12136
Balance as on 31st March, 2020	848

Solution:

Cash Flow Statement for the period ending 31st March, 2020

	(` in ‘000s)
A. Cash Flow from Operating Activities	
Receipts from customers	11132
Payment to suppliers	(8188)
Payment of Wages and Salaries	(276)
Payment of Overheads	(460)
Payment of Taxes	(972)
Net Cash from Operating Activities(A)	1236
B Cash Flow from Investing Activities	
Proceeds on sale of fixed assets	512
Acquisition of (payments) fixed assets	(920)
Net Cash Used in Investing Activities (B)	(408)
C Cash Flow from Financing Activities	
Proceeds on issue of shares	1200
Payments of dividends	(320)
Repayments of bank loans	(1000)
Net Cash Used in Financing Activities (C)	(120)

Net increase in cash and cash equivalents (A)+(B)+(C)		708
Cash and cash equivalents at the beginning of the period	140	
Cash and cash equivalents at the end of the period	848	

Illustration 5.5

From the following information, prepare a cash flow statement using: (i) Direct Method and (ii) Indirect Method.

Income Statement and Reconciliation of Earnings for the year ended 31.3.2020

		`
Net Sales		630000
Less: Cost of sales	495000	
Depreciation	15000	
Salaries and wages	60000	
Operating expenses	20000	
Provision for taxation	22000	612000
Net operating profit Non-recurring income:		18,000
Profit on sale of equipment		3,000
		21,000
Retained earnings (balance in Profit & Loss Account brought forward)		37950
		58950
Dividend declared and paid during the year		18000
Profit & Loss Account balance as on 31.3.2020		40950

Balance Sheets

	As at 31.3.2019	As at 31.3.2020
Capital	90,000	110000
Surplus in profit and loss A/c	37950	90950
Sundry creditors	60,000	58500
Outstanding expenses	6000	12000
Income tax payable	3000	3300
Accumulated depreciation on building and equipments	30000	33000
	22695	258750
Fixed assets Land	12000	24,000

Building and equipments	90000	1,44,000
Current assets Cash	15,000	18,000
Debtors	42,000	46,500
Stock	66000	24,000
Advances	1950	2250
	22695	258750

Cost of equipment sold was 18,000.

Solution:

	`	`
Cash Flows from Operating Activities:		
Cash receipts from customers **WN1**	625500	
Cash paid to suppliers and employees **WN2**	528800	
Cash generated from operations	96700	
Income tax paid **WN3**	(21700)	
Net Cash from Operating Activities		75000
Cash Flows from Investing Activities:		
Purchase of land	(12,000)	
Purchase of building and equipment **WN6**	(72000)	
Sale of equipment **WN5**		9000
Net cash used in Investing Activities		(75000)
Cash Flows from Financing Activities:		
Issue of share capital	21000	
Dividend paid	(18000)	
Net Cash from Financing Activities		3000
Net Increase in Cash and Cash Equivalents		3000
Cash and Cash Equivalents at the beginning		15,000
Cash and Cash Equivalents at the end		18000

Working Notes (WN):

1) Cash receipts from customers:WN1

		`
Sales revenue		630000
Add:	Debtors at the beginning	42000
		672000
Less:	Debtors at the end	46500
		625500

2) Cash paid to suppliers and

employees:WN2

Cost of goods sold		495000
Add: Operating expenses		20000
Salaries and wages		60000
		575000
Add: Creditors at the beginning	60000	
Stock at the end	24000	
Advances at the end	2250	
Outstanding expenses at the beginning	6000	92250
		667250
Less: Creditors at the end	58500	
Stock at the beginning	66000	
Advances at the beginning	1950	
Outstanding expenses at the end	12000	138450
		528800

3) Income tax paidWN3

Tax payable at the beginning	3000
Add: Provision for taxation	22000
	25000
Less: Tax payable at the end	3300
Tax paid during the year	21700

4) Accumulated depreciation written off on equipments (sold)WN4

Accumulated depreciation at the beginning	30000
Add: Depreciation for the year	15,000
	45000
Less: Accumulated depreciation at the end	33000
	12,000

5) Sale price of equipmentWN5

Cost price	18000
Less: Accumulated depreciation **WN4**	12000
	6000
Add: Profit on sale	3000
	9000

6) Purchase of building and equipmentsWN6

Balance at the beginning	90000

Less: Cost of equipment sold	18,000
Balance	72000
Balance at the end	144000
Purchased during the year	72000

Indirect Method

Cash flow statement for the year ended 31.3.2020

Cash Flows from Operating Activities:		
Net profit before taxation and extra-ordinary item		40000
Adjustments for:		
Depreciation		15,000
Operating profit before working capital changes		55,000
Increase in debtors		(4500)
Decrease in stock		42000
Increase in advances		(300)
Decrease in creditors		(1500)
Increase in outstanding expenses		6000
Cash generated from operation		(96700)
Income tax paid		21700
Net Cash from Operating Activities		75000
Cash Flows from Investing Activities:		
Purchase of land		(12000)
Purchase of building and equipments		(72000)
Sale of equipment		9,000
Net Cash Used in Investing Activities	(75000)	
Cash Flows from Financing Activities:		
Issue of share capital	21000	
Dividend paid	(18000)	
Net Cash from Financing Activities		3000
Net Increase in Cash and Cash Equivalents		3000

Cash and Cash Equivalents at the beginning	15000
Cash and Cash Equivalents at the end	18000

5.6 ACTIVITY 1: CASH FLOW STATEMENT OF NTPC LTD

Cash Flow of three years of NTPC Ltd is produced here. Create a group of your classmates and compare the figures of each year with another year. Further, comment on the increase/decrease of cash flows in various activities. Also, discuss the reasons for such increase/decrease.

Comparative Cash Flow Statement of NTPC Ltd*

Particulars	**---------- in Rs. Cr. ----------**		
	March 2020	**March 2019**	**March 2018**
Net Profit/Loss Before Extraordinary Items And Tax	**20,317.07**	**7,776.05**	**12,339.46**
Net Cash Flow From Operating Activities	22,014.26	16,030.47	19,248.35
Net Cash Used In Investing Activities	-27,677.12	-20,894.22	-20,388.19
Net Cash Used From Financing Activities	5,658.88	4,827.65	1,043.21
Foreign Exchange Gains / Losses	-0.03	-0.01	0
Net Inc/Dec In Cash And Cash Equivalents	**-4.01**	**-36.11**	**-96.63**
Cash And Cash Equivalents Begin of Year	24.38	60.49	157.12
Cash And Cash Equivalents End Of Year	20.37	24.38	60.49

*Source: https://www.moneycontrol.com/financials/ntpc/cash-flowVI/NTP#NTP

5.7 SUMMARY

The cash flow statement shows cash inflows and outflows and cash equivalents. Enterprises give substantial importance to this statement as it gives a tool to the users of financial information and make them aware of the sources and uses of cash and cash equivalents over a period of time.

A cash flow statement is a periodic statement. It is a statement of change in the financial position on cash basis. It shows the cash movement and explains the reasons for changes in cash position between two balance sheet dates. It

shows the inflow and outflow of cash and cash equivalents from various activities. It helps in the assessment of the company's capability to generate cash and cash equivalents and channels to utilise those cash flows. It provides information on inflow and outflow of cash and cash equivalents from various activities of a company under various heads, i.e. operating, investing and financing activities.

Cash comprises cash in hand and demand deposits with banks. Cash equivalents means short-term highly liquid investments that are readily convertible into known amounts of cash and are subject to an insignificant risk of changes in value. Marketable securities and money market instruments are considered cash equivalents. Generally, it includes commercial paper, treasury bills, short-term government bonds etc. with a maturity date of three months or less.

These activities can be put into three categories: Operating activities, investing activities, and Financing activities. Operating activities are comprised of the primary or main activities of a company. These activities create the principal revenue stream for the company. There are two different methods to identify cash from operating activities, *the indirect method and the direct method.* Investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents. Investing activities are related to the purchase and sale of long-term or fixed assets of a company. Financing activities are activities that result in changes in the size and composition of the owners' capital (including preference share capital in case of a company) and borrowings of the enterprise.

5.8 KEYWORDS

Cash from Operations

It refers to "Profit from Operation" duly adjusted against the increase or decrease in the current assets and liabilities.

Cash Equivalents

These are highly liquid short-term investments that could be readily converted to cash and are subject to an insignificant risk of changes in value.

Cash Flows

A company creates value for the shareholders by generating positive cash flows for them. As per AS-3[1], *cash flows are inflows and outflows of cash and cash equivalents,*

Cash Flow Statement

A cash flow statement is one of the three most important financial statements. It shows cash inflows and outflows, and cash equivalents over a period of time. It provides information about the historical changes in cash and cash equivalents by classifying all cash flows that derive from operating, investing and financing activities

Cash from Operating Activities

Operating activities comprise the primary or main activities of a company. These activities create the principal revenue stream for the company

Cash from Investing Activities

Investing activities are the acquisition and disposal of long-term assets and other investments not included in cash equivalents. Investing activities are related to the purchase and sale of long-term or fixed assets of a company.

Cash from Financing Activities

Financing activities result in changes in the size and composition of the owners' capital (including preference share capital in the case of a company) and borrowings of the enterprise.

5.9 SELF ASSESSMENT QUESTIONS

1. What are cash and cash equivalents?
2. Explain the meaning of a cash flow statement. Discuss its benefits.
3. Howls a cash flow statement prepared?
4. Discuss the proforma of a cash flow statement as described in AS-3.
5. Elaborate:

a. Operating Activities

b. Investment Activities and

c. Financing Activities

6. The following information is available from the books of XYZ Ltd. Calculate cash flow from operations.

Particulars	**2019**	**2020**
Profit made during the year		5,00,000
Income received in advance	1,000	1,200
Prepaid expenses	3200	2800
Bills receivables	52000	45000
Bills Payable	27000	31000
Outstanding expenses	5500	4500
Accrued income	3000	3500
Debtors	160000	190000
Creditors	90000	80000

7. From the following information, calculate cash from operations

Profit and Loss Account for the year ended 31st March 2020

Particulars	**Rs**	**Particulars**	**Rs**
Salaries	15000	Gross Profit	48000
Rent	5000	Profit on sale on land	7000

Depreciation	3500	Income tax refund	4000
Loss on sale of plant	1200		
Goodwill written off	6000		
Proposed dividend	6800		
Provision for tax	6000		
Net Profit	20900		
	59000		**59000**

8. The balance sheets of XYZ Ltd as on 31st December 2019 and 2020 are presented as under:

Particulars	**2019 (in Rs)**	**2020 (in Rs)**
Assets		
Land and Building	160000	200000
Plant and Machinery	500000	400000
Inventory	240000	280000
Cash Balance	120000	100000
Debtors	200000	150000
Total	**1220000**	**1130000**
Liabilities and Capital		
Equity Shares	480000	400000
Retained Earnings	320000	250000
Debentures	180000	300000
Creditors	80000	60000
Provision on depreciation :Plant	160000	120000
Total	**1220000**	**1130000**

Additional Information:

- Cash dividend of Rs 50,000 has been paid during the year

You are required to prepare cash flow statement.

5.10 FURTHER READINGS: (USE LATEST EDITIONS)

- Bhattacharyya, D. (2011). Management Accounting. Pearson India (Chapter 04)
- Maheshwari, S.N. and Maheshwari, S.K. (2012). Management Accounting.Vikas Publications. New Delhi (Section -III)
- Kishore, R.M. (2006).Financial Management Taxmann's Publication , New Delhi(Chapter 04)

- Khan , M.Y. and Jain, P.K. (2019). Financial ManagementMcGraw-Hill, New Delhi (Chapter 5)
- Arora, M.N. (2011) Cost and Management Accounting. Vikas Publications. New Delhi (Chapter 16)
- Hingorani, N.L. and A.R. Ramanathan (1986) Management Accounting, Sultan Chand : New Delhi. (Chapter 8).

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BLOCK 2
COST ACCOUNTING

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UNIT 6 UNDERSTANDING AND CLASSIFYING COSTS

Objectives

The Objectives of this unit are:

- to familiarise you with the process of determination of costs, particularly in a manufacturing concern
- to explain how the costing techniques are useful in the process of managerial decision-making.

Structure

6.1 Introduction

6.2 Cost Accounting

6.3 Costs

6.4 Elements of Cost

6.5 Components of Total Cost

6.6 Cost Sheet

6.7 Classification of Costs

6.8 Some other Concepts of Costs

6.9 Summary

6.10 Keywords

6.11 Self-assessment Questions/Exercises

6.12 Further Readings

6.1 INTRODUCTION

You will recall that units 1 and 2 of this Course gave you a detailed outline of the conceptual framework of accounting and the role the accountant is required to play in the present commercial and industrial setup. You have seen that he is more of an adviser to the management. He functions as the channel through which accounting information flows to the management efficiently and effectively. He gathers information, breaks it down, sifts it and organises it into meaningful categories. He separates relevant information from irrelevant and then ranks the former according to the degree of importance to management. He also compares the actual performance with the planned one and reports and interprets the results of operations to all levels of management and to the owners of the business.

In performing the above multiple duties, the accountant has to make use of different management accounting techniques. Cost techniques have precedence over other techniques since the accounting treatment of costs is often both complex and financially significant. For example, if a firm proposes to increase its output by 10%, is it reasonable to expect the total cost

to increase by less than 10%, exactly 10% or more than 10%? Such questions are concerned with the cost behaviour, i.e., the way costs change with the level of activity.

Answers to these questions are pertinent for the management accountant or financial analyst, since they are basic for the firm's projections and profits, ultimately Cost Management becomes the basis for all financial decisions. It is, therefore, necessary for a management accountant or financial analyst to have a reasonably good working knowledge about basic cost concepts and patterns of cost behaviour. All these come within the range of cost accounting.

6.2 COST ACCOUNTING

In the initial stages, cost accounting was merely considered to be a technique for ascertainment of costs of products or services on the basis of historical data. In the course of time it was realised, due to the competitive nature of the market, that ascertainment of cost' was not as important as controlling costs was. Hence, cost accounting is considered more a technique for `cost control' than merely for cost ascertainment. Due to technological developments in all fields, `cost reduction' has now come within the ambit of cost accounting. Cost accounting is thus concerned with:

- Ascertaining costs.
- Controlling costs.
- Reducing costs

6.3 COSTS

Cost Accountant is concerned with costs, and hence it will be of relevance to us to understand the meaning of the term `Cost' in a proper perspective.

In general, cost means the amount of expenditure (actual or notional) incurred on, or attributable to a thing. For example, if you have purchased a book for Rs. 150, it can be said that the cost of the book to you is Rs.150. Similarly, if a furniture manufacturer makes a table by paying Rs.500 for timber, Rs 200 as carpenter's wages and Rs.100 as the rent of the works, it can be said that the table cost him Rs.800. It may be noted, however, that the term cost cannot be precisely defined. Its interpretation depends on:

a) the nature of the business or industry; and

b) the context in which it issued.

In a business where selling and distribution expenses are quite nominal, the cost of the article may be calculated without considering the selling and distribution overheads. In a business where the nature of the product requires heavy selling and distribution expenses, the calculation of cost without taking into account selling and distribution expenses may prove very costly to the business. Further, the costs may pertain to factory, office or other establishment aspects of operations. For example, **prime** cost includes

expenditure on direct materials, direct labour and direct expenses. Money spent on materials is termed as cost of materials that spent on labour as cost of labour and so on. Thus, the use of the term 'cost' without background information may be quite misleading.

It may also be noted that there is no such thing as an exact cost or a true cost because no figure of cost is true in all circumstances and for all purposes. Many items of cost of production are handled in an optional manner which may give different costs for the same product or job without going against the accepted principles of cost accounting Depreciation is one such item. Its amount varies in accordance with the method of depreciation being used. However, the endeavour should be made to obtain the accurate cost of a product or service as far as possible.

6.4 ELEMENTS OF COST

In order to understand the correct interpretation of the term cost, it will be appropriate for us to learn about the basic elements of cost. There are broadly three elements of cost.

Material

The substance from which the product is made is known as material. It may be in a raw or a manufactured state. It can be direct as well as indirect.

Direct Materials: All material that becomes an integral part of the finished product and can be conveniently assigned to specific physical units is termed 'Direct Material'. The following are some of the examples of direct material:

- All material or components specifically purchased, produced or requisitioned from stores.

- Primary packing material (e.g., carton, wrapping, cardboard, boxes, etc.)
- Partly produced or purchased components.

Indirect Material: All material that is used for purposes ancillary to the business and which cannot conveniently be assigned to specific physical units is termed as 'indirect material'. Consumable stores, oil and waste, printing and stationery material, etc., are a few examples of indirect material costs.

Labour

For the conversion of materials into finished goods, human effort is needed. Such human effort is called labour. Labour can be direct as well as indirect.

Direct Labour: Labour that takes an active and direct part in the production of a particular commodity is called direct labour. Direct labour costs are, therefore, specifically and conveniently traceable to specific products.

Indirect Labour: Labour employed for the purpose of carrying, but tasks incidental to goods produced or services provided is indirect labour. Such labour does not alter the construction, composition or condition of the

product. It cannot be practically traced to specific units of output. Wages of store-keepers, foremen, time-keepers, directors' fees, salaries of salesmen, etc, are all examples of indirect labour costs.

Expenses

Expenses may be direct or indirect.

Direct Expenses: These are expenses that can be directly, conveniently and wholly allocated to specific cost centres or cost units. Examples of such expenses are the hire of some special machinery required for a particular contract, cost of defective work incurred in connection with a particular job or contracted.

Indirect Expenses: These are expenses that cannot be directly, conveniently and wholly allocated to cost centres or cost units. Examples of such expenses are rent, lighting, insurance charges, etc.

Cost Management

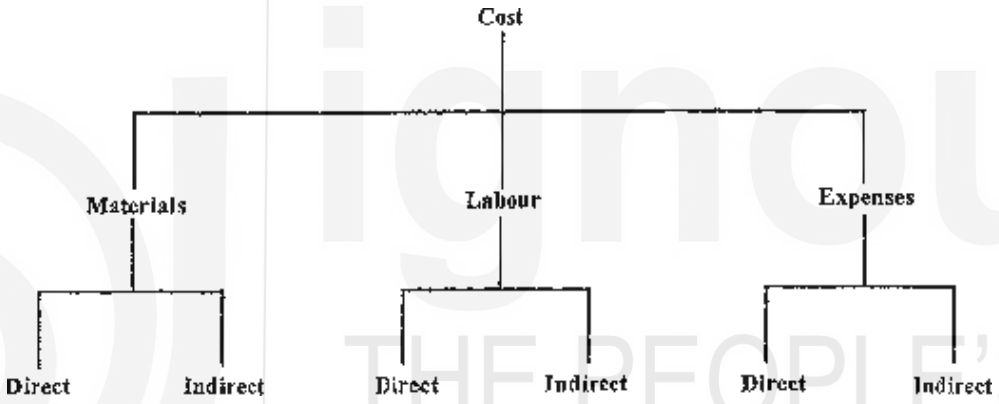


Chart 6.1: Element of Cost

Overheads

The term overhead includes indirect material, indirect labour and indirect expenses. Thus, all indirect costs are overheads.

A manufacturing organisation can broadly be divided into three divisions:

- Factory or Works, where production is done.
- Office and administration, where routine as well as policy matters are decided.
- Selling and distribution, where products are sold and finally despatched to the customers.

Overheads may be incurred in the factory or office or selling and distribution divisions. Thus, overheads may be of three types.

Factory Overheads: They include;

- Indirect material used in the factory such as lubricants, oil, consumable stores, etc.
- Indirect labour such as gate-keeper's salary, time-keeper's salary, manager's salary, etc.
- Indirect expenses such as factory rent, factory insurance, factory lighting, etc.

Office and Administration Overheads: They include:

- Indirect material used in the office such as printing and stationery material, rooms and dusters, etc.
- Indirect labour such as salaries payable to office manager, office accountant, clerks, etc.
- Indirect expenses such as rent, insurance, lighting of the office.

Selling and Distribution Overheads: They include:

- Indirect material used such as packing material, printing and stationery material, etc:
- Indirect labour such as salaries of salespersons and sales manager, etc.
- Indirect expenses such as rent, insurance, advertising expenses, etc.

The above classification of overheads can be shown by means of Chart 6.2

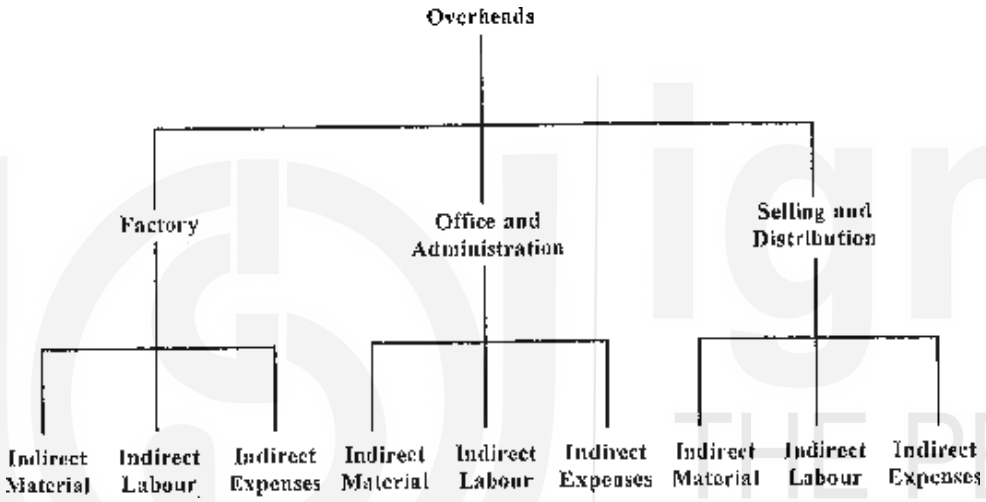


Chart 6.2: Classification of Overheads

6.5 COMPONENTS OF TOTALCOST

Understanding and Classifying Costs

Prime cost: It consists of costs of direct material, direct labour, and direct expenses. It is also known as basic, first or flat cost.

Factory Cost: It comprises prime cost and, in addition, works or factory overheads, which include costs of indirect material, indirect labour and indirect factory expenses. This cost is also known as works cost, production or manufacturing cost.

Office Cost: It comprises factory cost and office and administration overheads. It is also termed as the total cost of production.

Total Cost: It comprises of cost of production and selling and distribution overheads. It is also termed as Cost of Sales.

Various components of the total cost can be depicted by means of Chart 6.3.

Direct material	
Direct labour	
Direct expenses	Prime Cost or Direct cost or First cost or Flat Cost
Prime cost plus	
Works overheads	Works or Factory cost or Production cost or Manufacturing cost
Works cost plus Office and Administration overheads	Office cost or Total cost of production
Office cost plus Selling and Distribution overheads	Cost of Sales or Total Cost

Chart 6.3: Components of Total Cost

It may be noted that some accountants do not use the term office cost at all. They prefer to use the term total cost after adding office and administration overheads and selling and distribution overheads to works cost. However, while framing Chart 6.3, we have presumed that office and administration overheads exclusively relate to production. The selling and distribution overheads are inclusive of any office and administration overheads that may have been incurred, in respect of sales.

6.6 COST SHEET

The elements/ components of the total cost can be presented in the form of a statement, popularly known as the 'Cost Sheet'. The cost sheet may be prepared separately for each cost centre. It may have columns to show the total cost, cost per unit, together with the relevant figures of the previous period.

The techniques of preparing a cost sheet can be understood with the help of an Illustration.

Illustration 6.1

Let us prepare a cost sheet for a company showing different components of cost for 2021 from the following details

Raw Materials Consumed, Wages		*Rs*	Rs:
paid to labourers, Directly chargeable			80,000
expenses, Oil & Waste			20,000
Wages of Foremen			4,000
Storekeeper's Wages Electric Power			200
			2,000
			1,000
			400
Lighting:	Factory	1,000	
Office		400	1,400

Rent:	Factory	4,000	
	Office	2,000	6,000
Repairs and Renewals:			
Factory Plant		1,000	
Machinery		2,000	
Office premises		400	3,400
Depreciation: Office premises		1,000	
Plant and Machinery		400	1,400
Consumable stores			2,000
Manager's Salary			4,000
Director's Fees			1,000
Office Printing & Stationery			400
Telephone Charges			100
Postage and Telegrams			200
Sales men's Commission and Salary			1,000
Travelling expenses			400
Advertising			1,000
Warehouse charges			400
Carriage outwards			300

Cost Sheet for January 2021

	Rs.	Rs.	Rs.
Direct Material: Raw materials consumed			80,000
Direct Labour: Wages paid to laborers			20,000
Direct Expenses: Directly chargeable expenses			4,000
PRIME COST			1,04,000
Add: Factory overheads:			
Indirect Materials:			
Consumable stores	2,000		
Oil & Waste	200		
		2,200	
Indirect Labour:			
Wages of foremen	2,000		
Storekeeper Wages	1,000	3,000	
Indirect Expenses:			
Electric Power	400		
Factory lighting	1,000		
Factory rent	4,000		
Repairs and Renewals:			
Plant 1,000			
Machinery 2,000	3,000		

Depreciation:			
Plant and machinery	400	8,800	14,000
Factory or Works Cost			1,18,000
Add: Office or Administrative Overheads:			
Indirect material			
Office Printing and Stationery		400	
Indirect labour:			
Manager's salary	4,000		
Director's fees	1,000	5,000	
Indirect expenses:			
Office lighting	400		
Office rent	2,000		
Repairs and Renewals premises	400		
Depreciation on premises	1,000		
Telephone charges	100		
Postage and Telegrams	200	4,100	
			9,500
			1,27,500
TOTAL COST OF PRODUCTION			
Add: Selling and Distribution overheads: Indirect labour:			
Salesmen's Commission and salary		1,000	
Indirect expenses:			
Travelling expenses	400		
Advertising	1,000		
Warehouse charges	400		
Carriage outward	300	2,100	3,100
COST OF SALES			1,30,600

Activity 6.1

Complete the following Cost sheet

Cost Sheet for June 2020

	Opening stock of raw material	10,000		
	Add purchases	……..		
	Less: Closing stock of raw material	50,000		
	Raw material consumed	12,000		
	Direct wages	……		…….
	Other Direct expenses			30,000
				2,000
				…….
a)	Prime Cost	6,000		
	Add: Factory overhead:			
	Indirect material			
	Indirect labour			
	Indirect expenses	1,000		
			9,000	
b)	**Factory or Works Cost**		17,000	
	Add: Office or administration Overheads			
c)	**Cost of Production**	14,000		
	Add: Opening stock of finished goods			
	Less: Closing stock of finished goods	15,000		
	Selling and Distribution overheads		8,000	
d)	**Cost of goods sold**		1,03,000	
	Sale of finished goods		1,33,000	
	Profit for the month		…….	

6.7 CLASSIFICATION OF COSTS

Costs can be classified into different categories depending upon the purpose for which information is required. The costs can broadly be classified into **Fixed, Variable, Semi-variable and Step Costs.**

Fixed Costs: These are the costs that remain constant irrespective of the quantum of output within and up to the capacity that has been built up. Examples of such costs are rent, insurance charges, management salary, etc.

Fixed costs remain constant per unit of time. As a result, they decrease per unit with every increase in output and *vice versa.* For example, if Rs.6,000 have been paid as rent for a factory building with an output of 1,000 units, the cost of rent per unit is Rs.6. In case the output increases to 1,200 units, the cost of rent per unit will decrease to Rs.5. In case the output is reduced to 800 units, the cost of rent per unit will increase toRs.7.50.

Fixed costs sometimes are also referred to as period costs. They can further be divided into (i) committed fixed costs (ii) discretionary fixed costs.

Committed Fixed Costs Consists primarily of those fixed costs that arise

from the possession of the plant, equipment and a basic organisational structure. For example, once a building is constructed and a plant is installed, nothing much can be done to reduce the costs such as depreciation, property taxes, insurance and salaries of the key personnel, etc., without impairing the organisation's competence to meet the long-term goals.

Discretionary Fixed Costs are those which are set at a fixed amount for specific time periods by the management in the budgeting process. These costs directly reflect top management policies and have no particular relationship with the volume of output. These costs can therefore be reduced or eliminated if the circumstances so require. Examples of such costs are research and development costs, advertising and sales promotion costs, donations, management consulting fees, etc. These costs are also termed as managed or programmed costs.

Figure 6.1 shows the behaviour of fixed cost graphically.

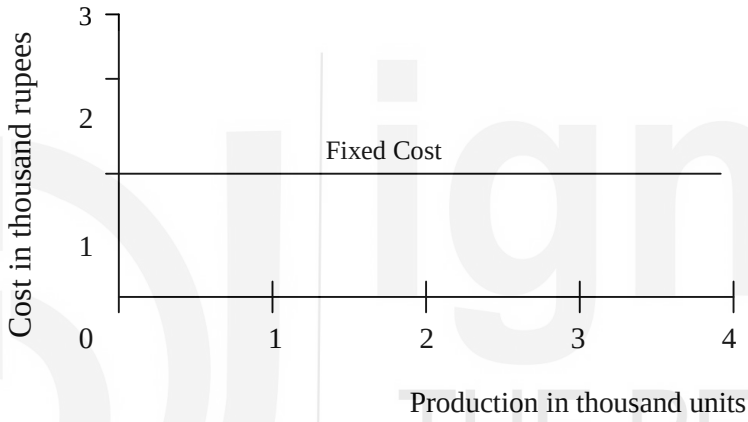


Figure 6.1: Fixed Cost behaviour

Variable Costs: These are the costs that vary in direct proportion to output. They increase or decrease in the same proportion in which the output increases or decreases. The examples of such costs are direct material, direct labour, power, etc.

Variable costs may be said to be constant per unit of output. For example, if a factory incurs Rs. 1,000 on raw material for an output of 1,000 units, the cost of raw material per unit would amount to Re. 1. If the output increases to 2,000 units, the cost of raw material would proportionately increase to Rs. 2,000 (i.e. Re. 1 x 2,000). Similarly, if the output decreases to 800 units, the cost of raw material would also decrease to Rs 800 (i.e. Re.1 x800)

Variable costs are also referred to as product costs. Figure 6.2 gives graphical presentation of variable costs

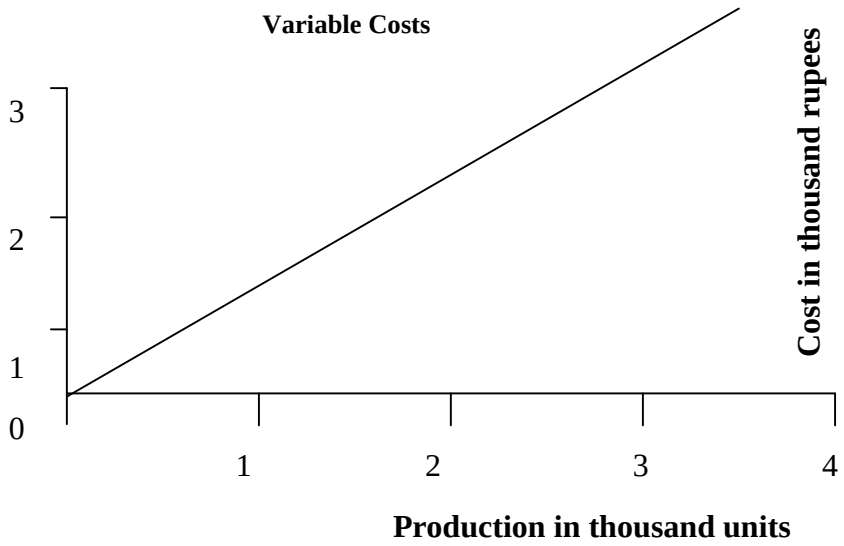


Figure 6.2: Variable Cost Behaviour

Semi-variable Costs: These are the costs that do vary but not in direct proportion to output. They are made up of both fixed and variable cost elements such as depreciation, repairs, light, heat, telephone, etc.

Semi–variable costs are shown graphically in Figure 6.3

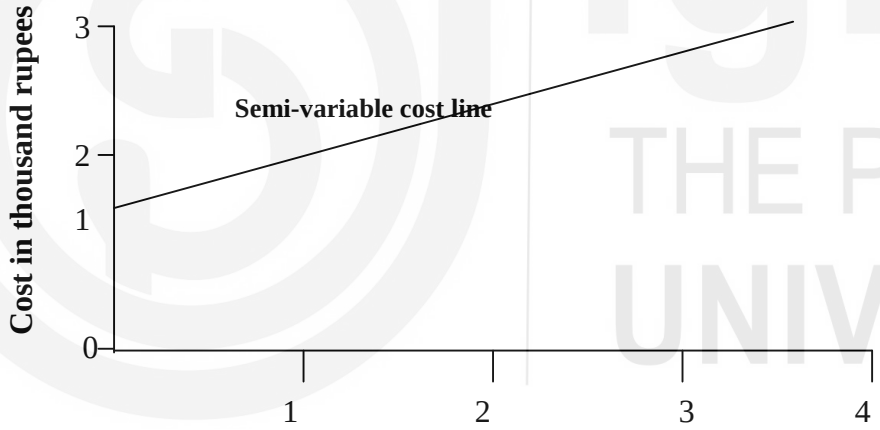


Figure 6.3: Semi-Variable Cost Behaviour

Identification of fixed and variable elements of semi-variable costs is essential for the management for planning their business activities. Different methods are available for this purpose which will be discussed in the next unit.

Step Costs: Fixed costs, in general, remain fixed over a range of production activity and then jump to a new level as activity changes. For example, a foreman can supervise a given number of workers. Beyond this number, it is necessary to hire a second foreman, then a third and so on. Similarly, the rental cost of delivery vehicles also follows the same pattern.

The general characteristic of fixed cost rising in steps is depicted in Figure 6.4

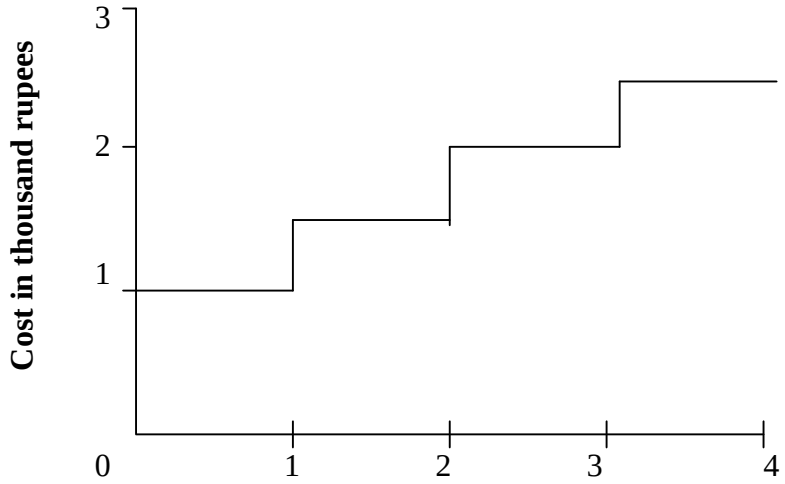


Figure 6.4: Fixed Costs rising in Steps

Illustration 6.2

A company has provided the following information in respect of 10,000 units of output. Let us calculate the total cost for 12,000 units of output and the cost per unit with the following information:

Variable cost	Rs.50,000
Fixed Cost	Rs.30,000
Semi-variable Cost(50%fixed)	Rs.80,000

STATEMENT OF COST

Output 12,000 units

	Rs.		*Rs.*
Variable Cost @ Rs.5			60,000
Fixed cost			30,000
Semi-variable cost:			
Fixed	40,000		
Variable cost @ Rs.4	48,000		88,000
Total cost			1,78,000
Cost per unit		1,78,000	Rs.14.83
	=	12,000	

Direct and Indirect Cost

Direct Costs: These are costs that can be directly, conveniently and wholly traced to a product, service or job. Examples of such costs are direct material, direct labour and direct expenses.

Indirect Costs: These are costs that cannot be directly, conveniently and

wholly identified with a specific product, service or job. They include all overhead costs such as salaries of timekeepers, stores keepers, foremen, printing and stationery costs, etc.

Indirect or overhead costs are apportioned to different jobs, products or services on a reasonable basis. For example, the indirect factory labour cost may be apportioned over different jobs according to their direct labour cost. Similarly, the selling overheads can be charged to different products according to their sales values.

It may be noted that the more the share of the direct cost in relation to the total cost of the product, the greater is the exactness in costing. The reason for this is that indirect costs are allocated (or apportioned) on an estimated basis.

Activity 6.2

In terms of your own organisation, give five examples of each of the following:

a) Direct Costs

b) Indirect Costs

c) Fixed Costs

d) Variables costs

e) Semi-Variables Costs

……

……

……

……

……

……

……

……

6.8 SOME OTHER CONCEPTS OFCOSTS

Shut Down and Sunk Costs

Shut Down Costs: These represent the fixed costs that have to be incurred even when a factory is shut down on account of some temporary difficulties, viz., shortage of raw materials, non-availability of requisite labour force etc. During this period, though no work is done, the fixed costs, such as rent, insurance, depreciation, maintenance, etc., for the entire plant are still to be incurred. Such costs of the idle plant are known as shut down costs.

Sunk Costs: These are historical or past costs or the costs incurred as a result of a decision made in the past. Such costs cannot be reversed or revised by

subsequent decisions. Investments in plant and machinery, building, etc., are some prominent examples of such costs. Sunk costs are considered not relevant for decisions concerning the increase in the present profit levels. Let us consider an example.

Goa Steel Ltd purchased a machine for Rs.60,000. The machine has an operating life of five years without any scrap value. Soon after making the investment, the management felt that the machine should not have been purchased as it was incapable of yielding the operating advantage initially contemplated. Originally, it was expected to result in savings in operating costs of Rs.40,000 over a period of ten years. On the other hand, the machine can be sold immediately for a sum of Rs. 42, 000.

In deciding whether the machine should be sold or used, the relevant amounts to be compared are Rs. 40,000 in cost savings over ten years and Rs 42,000 that can be realised in case it is immediately disposed off. Rs 60,000 invested in the asset are not relevant since it is the same in both cases. This amount is sunk cost. Therefore, Goa Steels should sell the machinery for Rs. 42,000 since it will result in a gain of Rs 2,000 as compared to keeping and using it.

Controllable and Uncontrollable Costs

Controllable Costs: These are costs that can be influenced by the action of a specified member of an organisation. For example, the foreman of a production department can control the utilisation of power or raw materials in his department. These are, therefore, controllable costs as far as he is concerned.

Uncontrollable Costs: These are costs that cannot be influenced by the action of a specified member of an undertaking. For example, the foreman of a production department can control the wastage of power in his department, but he cannot control the power being wasted in the powerhouse itself, resulting in a higher cost per unit of power to him. Similarly, he cannot control the increase in the cost of materials consumed in his department if the purchasing department or the supplying department buys the materials at higher prices due to its own inefficiency. Such costs are controllable at a particular level of management while they are uncontrollable at some other level of management.

The difference between controllable and uncontrollable costs is of particular significance to the management. The executive concerned should be held responsible only for those costs which are within his control and not for costs beyond his control.

Imputed or Hypothetical Costs: These are costs that do not involve cash outlay. They are not included in cost accounts but are important for making management decisions. For example, interest on capital is ignored in cost accounting though it is considered in financial accounting. If two projects require unequal outlays of cash, the management must take into consideration interest on capital to judge the relative profitability of the projects.

Differential, Incremental or Decremental Costs: The difference in total costs between two alternatives is termed as differential cost. In case the

choice of alternative results in an increase in the total costs, such increased costs are known as incremental costs. If the choice decreases total costs, the resulting decrease is known as decremental costs. While assessing the profitability of a proposed change, the incremental costs are matched with incremental revenues. The following illustration will demonstrate the concept of incremental costs.

Illustration 6.3

A company is presently selling 1000 unit @ Rs. 10 per unit. The variable cost per unit is Rs 5, and the total fixed costs are Rs.4,000. The company receives an order for a supply of 200 units @ Rs.8 per unit. The execution of this export order will increase the fixed cost by Rs.200.

The cost and sales data under the existing and proposed situation can be put as under:

	Existing situation		*Proposed situation*		*Incremental*	
					Cost	*Revenue*
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sales		10,000		11,600		1,600
Less: Variable costs	5 000		6 000			
Less : Fixed costs	4,000	9,000	4,200	10,200		1,200
Profit		1,000		1,400		400

Under the existing situation, there is a profit of Rs.1,000. If the alternative proposal is considered, it would result in incremental revenue of Rs.1,600 against the incremental cost of Rs. 1,200. Hence the incremental profit will be Rs.400.

Out-of-Pocket Costs: Out-of-pocket cost means the present or future cash expenditure regarding a certain decision which may vary, depending upon the nature of the decision made. For example, a company has its own trucks for transporting raw materials and finished products from one place to another. It seeks to replace these trucks by employing public carriers of goods. In making this decision, of course, the depreciation of the trucks is not to be considered. However, the management must take into account the present expenditure on fuel, salary to drivers and maintenance, which have to be incurred in cash. Such costs for arriving at a decision are termed as out-of-pocket costs.

Opportunity Costs: Opportunity cost refers to the advantage, in measurable terms, which has been foregone on account of not using the facilities in the manner originally planned. For example, suppose an owned building is proposed to be utilised for housing a new project plant. In that case, the likely revenue that the building could fetch if rented out is the opportunity cost that should be considered while evaluating the profitability of the project.

Suppose you have a sizeable deposit in a bank that is fetching you a return of 10% per annum. When your deposit is nearing maturity (but can be renewed), your friend approaches you with a business proposal that is likely to earn you

a return of 18% (after-tax). After careful consideration of the factors relating to risk and return, you decide to go in for the proposal. Obviously, you have to give tip to the existing alternative in view of the limited funds you have. Thus you will no longer have the bank deposit. The sacrifice in the form of 10% interest on your deposit in the bank that you have to forego if you go in for a business proposal, is the opportunity cost for the new alternative.

Traceable, Untraceable and Joint Costs

Traceable Cost: These are costs that can be easily identified or traced to specific products, services or units of the company, such as raw material and labour.

Untraceable Cost: These are costs that cannot be identified with a department, process or product. Such costs are also termed as common costs, as they are incurred collectively for a number of products or cost centres, e.g., overheads incurred for the factory as a whole. As such, they are apportioned among various products or cost centres using suitable criteria.

Joint Costs: Whenever two or more products are produced out of the same raw material or process, the cost of material purchased and the processing costs are called joint costs. Take the example of an oil refinery where a range of products such as bitumen, petrol, kerosene, diesel, are derived in the process of refining crude oil. All these products have joint costs comprising the cost of crude and the cost incurred in the course of refining. These joint costs are then apportioned to various products on some basis.

Conversion Cost: The cost of transforming direct materials into finished products, exclusive of direct material cost, is known as conversion cost. It is usually taken as the aggregate of the cost of direct labour, direct expenses and factory overheads.

The above classification concepts of cost help the management in the decision making process. For example, the segregation of cost into fixed and variable elements will help the management in analysing the total cost. Similarly, the segregation of costs into controllable and uncontrollable categories will help the management fix the responsibilities of the different executives for unfavourable cost variances. Numerous other examples can be given, highlighting the usefulness of the above classification of costs.

6.9 SUMMARY

In order to maximise a firm's wealth, ascertaining and controlling costs is necessary. Cost control involves controlling different elements of costs, viz. material, labour and expenses. Each of these elements of costs can further be classified into direct and indirect. The term overhead is used for all indirect costs. Costs can be classified into different categories: direct and indirect costs; fixed, variable and semi- variable costs; controllable and uncontrollable costs; differential incremental or decremental costs, out-of-pocket costs and opportunity costs, etc. Each classification of costs has its significance in the managerial decision-making process.

6.10 KEYWORDS

Cost: The amount of expenditure (actual or notional) incurred on or attributable to a given thing.

Conversion Cost: The Cost of converting direct materials into finished products, i.e., direct wages, direct expenses and factory overheads.

Controllable Cost: Costs chargeable to a job or cost centre which can be influenced by the actions of the persons in whom the control of such a centre is vested.

Differential Cost: The difference in total cost between two alternatives.

Fixed Cost: The cost which remains fixed irrespective of the quantum of output over a given capacity of the organisation.

Opportunity Cost: The value of the benefit sacrificed in favour of choosing a particular alternative or action.

Uncontrollable Cost: The costs chargeable to a job or cost center which cannot be influenced by the action of the person in whom the control of the center vests.

Variable Cost: The cost which tends to vary in direct proportion to changes in the volume of output or turnover.

6.11 SELF-ASSESSMENT QUESTIONS/EXERCISES

1. What do you understand by cost accounting? State its objectives.
2. What do you understand by cost? Explain its different elements.
3. All controllable costs are direct costs; not all direct costs are controllable. Explain with the help of suitable examples.
4. "Fixed costs are variable per unit, while variable costs are fixed per unit". Comment.
5. How would you differentiate between `Direct cost' and `Variable Costs'? Give suitable illustrations.
6. State whether each of the following statements is `True' or 'False'.

		True	False
i)	Cost Accounting is a branch of Financial Accounting.	☐	☐
ii)	Depreciation is an 'out of pocket' cost.	☐	☐
iii)	Fixed cost per unit remains fixed.	☐	☐
iv)	An item of cost which is direct for one business may be indirect for another.	☐	☐
v)	The terms 'overheads' and indirect expenses have same meaning.	☐	☐

7. Select the most appropriate answer for each of the following cases:
   i) Cost accounting mainly helps the management in:
      a) earning extra profit:

b) providing information to management for decision-making, and c) fixing prices of the products.

ii) Variable cost per unit:

a) remains fixed;

b) fluctuates with the volume of production; and

c) varies in sympathy with the volume of sales.

iii) Fixed cost per unit increases when:

a) production volume decreases;

b) production volume increases; and

c) variable cost per unit decreases

iv) Opportunity cost helps in:

a) ascertaining cost,

b) controlling cost, and

c) making managerial decisions.

v) Conversion cost is the sum total of:

a) direct material cost and direct wages cost

b) direct wages, direct expenses and factory overheads, and

c) indirect wages and factory overheads.

8. Prepare a cost sheet from the following details:

Raw Materials :	
Opening stock Purchases Closing	20,000 1,00,000 40,000
Direct wages	40,000
Chargeable Expenses	8,000
Machine hours worked	16,000
Machine hour rate	Rs. 2
Office overheads	10% of works cost
Selling Overheads	Rs. 1.50 per unit
Cash discount allowed	1,000
Interest on capital	2,000
Units produced	4,000
Units sold	3,600 @ Rs. 50 each

(Hint: Cash discount and interest on capital are to be excluded from costs).

9. Calculate

(a)Value of raw material consumed,

(b)Total cost of production,

(c) Cost of production of goods sold, and

(d) The amount of profit from the following particulars:

Opening Stock: Raw materials Finished goods	Rs. 5,000 4,000
Closing stock Raw materials Finished goods	 4,000 5,000
Raw materials purchased	40,000
Octroi paid on raw materials	4,000
Carriage inward	6,000
Direct wages paid	20,000
Direct expenses	2,000
Rent, rats and taxes	5,000
Power	2,000
Factory heating and lighting	2,000
Factory insurance	1,000
Experimental expenses	500
Office management salaries	4,000
Office printing and stationary	2,000
Salary of salesman	600
Advertising	300
Carriage outwards	100
Sales	1,00,000

Answers to Self-assessment Questions/ Exercises

6. (i) F; (ii)F; (iii) F; (iv) T; (v)F.

7 (i) b; (ii)a; (iii) a; (iv) c; (v)b.

8. Prime Cost Rs. 1,28,000; Works cost Rs.1,60,000Cost of production Rs. 1,76,000; Cost of sales Rs. 1,63,800; Profit Rs. 16,200

9 (a) Rs.51,000; (b) Rs. 89,500; (c) Rs. 89,500 and (d) Rs.10,500

6.12 FURTHERREADINGS

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UNIT 7 ABSORPTION AND MARGINAL COSTING

Objectives

The aims of this unit are:

- to familiarise you with the techniques of Absorption Costing and Marginal Costing
- to explain the basic features and in that process bring out explicitly the differences between the two techniques
- to develop an appreciation that Marginal Costing has an edge over Absorption Costing as far as managerial decision making is concerned

Structure

7.1 Introduction

7.2 Absorption Costing

7.3 Marginal Costing

7.4 Absorption Costing and Marginal Costing :Differences

7.5 Marginal Cost

7.6 Segregation of Semi-variable Costs

7.7 Contribution

7.8 Break-even Analysis

7.9 Utility of Marginal Costing

7.10 Limitations of Marginal Costing

7.11 Summary

7.12 Keywords

7.13 Self-assessment Questions/Exercises

7.14 Further Readings

7.1 INTRODUCTION

In the preceding unit, we familiarised you with the different elements of cost i.e. materials, labour and expenses. These elements of cost can broadly be put into two categories: Fixed and variable costs. Fixed costs are those which do not vary but remain constant within a given period of time in spite of fluctuations in production. The examples of fixed costs are: rent, insurance charges, management salaries, etc. On the other hand, variable costs are those which vary in direct proportion to any change in the volume of output. The costs of direct material, direct wages etc can be put into this category. The cost of a product or process can be ascertained (using the different elements of cost) by any of the following two techniques:

- Absorption Costing
- Marginal Costing

7.2 ABSORPTIONCOSTING

Absorption costing technique is also termed as Traditional or Full Cost Method. According to this method, the cost of a product is determined after

considering both fixed and variable costs. The variable costs, such as those of direct materials, direct labour, etc. are directly charged to the products, while the fixed costs are apportioned on a suitable basis over different products manufactured during a period. Thus, in case of Absorption Costing all costs are identified with the manufactured products. This will be clear with the help of the following illustration.

Illustration 7.1

Tripura Ltd. is manufacturing three products: A, B and C. The costs of manufacture are as follows:

	A	**B**	**C**
	Rs.	Rs.	Rs.
Direct Materials	3	4	5
Direct Labour	2	3	4
Selling Price	10	15	20
Output	1,000 units	1,000 units	1,000 units

The total overheads are Rs. 12,000, out of which Rs. 9,000 is fixed, and the rest are variable. It is decided to apportion these costs over different products in the ratio of output. We would prepare a statement showing the cost and profit of each product according to Absorption Costing.

Statement Showing Costs and Profit (According to Absorption Costing Technique)

A			**B**		**C**
	Per Unit	*Total Unit*	*Per Unit*	*Total Rs.*	*per Unit*	*Total Rs.*
	Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*	
Direct Materials	3	3,000	4	4,000	5	5,000
Direct Labour	2	2,000	3	3,000	4	4,000
Overheads:						
Fixed	3	3,000	3	3,000	3	3,000
Variable	1	1000	1	1,000	1	1,000
Total Cost	9	9,000	11	11,000	13	13,000
Profit	1	1,000	4	4,000	7	7,000
Selling Price	10	10,000	15	15,000	20	20,000
Total profit		Rs. 1,000+ Rs. 4,000 + Rs. 7,000 = Rs. 12,000				

This system of costing has some disadvantages:

- It assumes prices are simply a function of costs.
- It does not take account of demand.
- It includes past costs which may not be relevant to the pricing decision at hand.
- It does not provide information that aids decision-making in a rapidly changing market environment

As a result of these disadvantages, fallacious conclusions may be derived, as shown in the following illustration.

Illustration 7.2

With the data given in Illustration 7.1, we would calculate the amount of profit or loss made by Tripura Ltd. in the first two years of its existence, presuming that:

a) In the first year, it manufactures 1,000 units of each of the products A, B and C but fails to affect any sales.

b) In the second year, it does not produce anything but sells the entire stock carried forward from the first year.

The profit or loss for the first two years can be ascertained by preparing the Profit and Loss Account for each of these years.

Tripura Ltd.

Profit & Loss Account for the 1st year

		Rs.	Rs.	Rs.
Direct Material			Sales	-
A		3,000	Closing Stock	33,000
B		4,000		
C		5,000		
		12,000		
Direct Labour				
A		2,000		
B		3,000		
C		4,000		
		9,000		
Overheads:				
Variable				
A	1,000			
B	1,000			
C	1,000	3,000		
Fixed	9,000	12,000		
Total:		33,000	Total:	33,000

Tripura Ltd. Profit &Loss Account for the 2nd year

	Rs.			Rs.
Opening Stock	33,000	Sales		
Fixed Overheads	9,000			
Profit	3,000	A	10,000	
		B	15,000	
		C	20,000	45,000
Total:	45,000		**Total:**	45,000

The above Profit and Loss Accounts show that in the first year in spite of the fact that the company does not make any sales, there is no loss whatsoever; while in the second year, it makes a profit of Rs.3,000. The company lost Rs

9,000 on account of non-recovery of fixed cost in the first year. The Profit and Loss Account does not show any loss because these fixed costs have been included in the closing inventory values and thus carried forward to the following year. As a result, the Profit and Loss Account for the second year has to bear Rs.18,000 on account of fixed costs (i.e.Rs.9,000 for the first year + Rs.9,000 for the second year).The real profit in the second year should have been Rs.12,000 and not Rs. 3,000. This will be elaborated a little later.

Thus, the technique of Absorption Costing may lead to rather odd results, particularly for seasonal businesses in which the stock levels fluctuate widely from one period to another. Their profits for the two periods will be influenced by the transfer of overheads in and out of stock, showing falling profits when the sales are high and increasing profits when the sales are low.

The technique of Absorption Costing may also lead to the rejection of profitable business. The total unit cost will tend to be regarded as the lowest possible selling price. An order at a price that is less than the total unit cost may be refused, though this order may actually be profitable, as shown in Illustration 7.3.

Illustration 7.3

You are the Managing Director of Usha Automobiles Ltd. and have received a special offer to supply 200 components at Rs. 60 apiece from a motorbike manufacturer. Your company has the capacity to produce 1,000 components. You are at present, working at 80 per cent capacity. The current selling price per component is Rs.100. The cost details, as supplied by your Cost Accountant, are as follows:

Variable cost per unit	Rs. 40
Fixed overheads cost per unit (Total Fixed overheadsRs.24,000)	Rs.30
Total Cost per unit	Rs.70

Your Cost Accountant advises you to reject the order since you will be getting less than the total cost of the component. How would you react?

The advice given by the Cost Accountant is not correct. Since he has based his decision on Absorption Costing, he is advising against accepting the special offer. In fact, the acceptance of the special order may result in extra profit to the company, as shown below:

Statement of Profit

	Sales		Total
Sales in Units	800	200	1000
Sales in Rs.	80,000 (800 x 100)	12,000 (200 x 60)	92,000
Total Cost:			
Fixed (Rs)	24,000	-	24,000
	56,000	8,000	64,000
Profit (Rs)	24,000	4,000	28,000

Thus, if the offer is accepted, the profit will increase from Rs. 24,000 to Rs. 28,000. It is, therefore, advisable to accept the offer rather than reject it.

7.3 MARGINALCOSTING

The technique of Marginal Costing is a definite improvement over the technique of Absorption Costing. According to this technique, only the variable costs are considered in calculating the cost of the product, while fixed costs are charged against the revenue of the period. The revenue arising from excess sales over variable costs is technically known as Contribution under Marginal Costing.

The following illustration will help you in understanding the technique.

Illustration 7.4

From the data given in Illustration 7.1, Let us prepare a statement of cost and profit according to Marginal Costing Technique.

Statement of Cost and Profit

(According to Marginal Costing Technique)

	Product A		**Product B**		**Product C**	
	Per Unit	*Total*	*Per Unit*	*Total*	*Per Unit*	*Total*
	Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*	*Rs.*
Direct Material	3	3,000	4	4,000	5	5,000
Direct Labour	2	2,000	3	3,000	4	4,000
Variable overheads	1	1,000	1	1,000	1	1,000
Total Marginal Cost	6	6,000	8	8,000	10	10,000
Contribution	4	4,000	7	7,000	10	10,000
Selling Price	10	10,000	15	15,000	20	20,000

Thus, the total contribution from the three products, A, B and C is Rs. 21,000. The profit will now be computed as follows:

Total Contribution			Rs.21,000
Fixed Costs			9,000
Profit			12,000

Marginal Costing helps us in managerial decision-making, as can be seen from the following illustrations:

Illustration 7.5

With the data given in Illustration 7.2, let us calculate the amount of profit or loss by preparing a Profit and Loss Account according to the Marginal Costing technique.

Profit and Loss Account for the 1st year

	Rs.			Rs.
Direct Material A	3,000		Sales	--------
B	4,000		Closing Stock Loss	24,000
C	5,000	12,000		9,000

Direct Labour A	2,000		
B	3,000		
C	4,000 9,000		
Variable overheads	3,000		
Fixed overheads	9,000		
	33,000		33,000

Profit and Loss Account for the 2nd year

	Rs.			Rs.
Opening Stock	24,000	Sales		
Fixed overheads	9,000	A	10,000	
Profit	12,000	B	15,000	
		C	20,000	45,000
	45,000			45,000

The above statement shows that the company suffers a loss of Rs. 9,000 in the first year because of non-recovery of fixed overheads, while in the second year it makes a profit of Rs. 12,000. It may be seen from the two years Profit and Loss Accounts that the fixed cost of one year has not been carried forward to the next year. Thus, the profit and Loss Account gives a correct picture

7.4 ABSORPTION COSTING AND MARGINAL COSTING:DIFFERENCES

The difference between Absorption Costing and Marginal Costing is based on the recovery of fixed overheads. The difference in the valuation of inventory under the two techniques is a consequence of such treatment. However, for the sake of clarity, we are analysing the difference from angles, viz., and recovery of overheads and valuation of stock.

Recovery of overheads

In the case of Absorption Costing, both fixed and variable overheads are charged to production. On the other hand, in Marginal Costing only variable overheads are charged to production while fixed overheads are transferred in full to the profit and loss account. Thus, in case of marginal costing, there is under-recovery of overheads since only variable overheads are charged to production.

Valuation of Stocks

In Absorption Costing stocks of work-in-progress and finished goods are valued at works cost and total cost of production, respectively. The works cost or cost of production is defined as including the amount of fixed overheads. In marginal Costing, only variable costs are considered while computing the value of work-in-progress or finished goods. Thus, the closing stock in Marginal Costing is under-valued as compared to Absorption Costing. But this does not result in carrying over of fixed overheads of one period to another, as it happens in Absorption Costing.

The above points of difference will become clear with the help of the following illustration.

Illustration 7.6

Taking the figures given in Illustration 7.1, let us compute the amount of profit under Marginal and Traditional Costing systems, if units sold of products A, B and C are 900 each.

Statement of Profit (Absorption Costing Systems)

	A	B	C
	Rs.	Rs.	Rs.
Direct Material	3,000	4,000	5,000
Direct Labour	2,000	3,000	4,000
Overheads : Variable	1,000	1,000	1,000
Total Marginal Cost	6,000	8,000	10,000
Add: Fixed overheads	3,000	3,000	3,000
Total Cost of Production	9,000	11,000	13,000
Less: Closing Stock	900	1,100	1,300

Thus, total profit under Absorption Costing is:

	Rs.		
Cost of goods sold	8,100	9,900	11,700
Profit	900	3,600	6,300
Sales	9,000	13,500	18,000

Product A	900
Product B	3,600
Product C	6,300
	10,800

Statement of Profit

(Marginal Costing)

	A	B	C
	Rs.	Rs.	Rs.
Total Marginal Cost	6,000	8,000	10,000
Less: Closing Stock	600	800	1,000
Cost of goods sold	5,400	7,200	9,000
Contribution (Sales - Marginal Cost of Production)	3,600	6,300	9,000
Sales	9,000	13,500	18,000

Thus, total profit under will be:	Marginal Costing Rs
Product A	3,600
Product B	6,300
Product C	9,000
Total Contribution	18,900
Less: Fixed cost	9,000
Profit	Rs.9,900

The profit under the Traditional Costing system is Rs. 10,800 while Rs. 9,900 under the Marginal Costing system. This is on account of the difference in the valuation of closing stock. The closing stock under Traditional Costing system includes fixed cost of Rs900.

That is why the profit under Traditional Costing System is higher by Rs. 900 compared to Marginal Costing system.

Illustration 7.7

From the following cost, production and sales data of Competent Motors Ltd., prepare a comparative income statement for three years under (i) absorption costing method and (ii) marginal costing method. Indicate the unit cost for each year under each method. Also, evaluate the closing stocks. The company produces a single article for sale.

Particulars	*Year*		
	2018	*2019*	*2020*
Selling price per unit	20	20	20
Variable manufacturing cost per unit	10	10	10
Total fixed manufacturing cost	5,000	5,000	5,000
Opening stock			500
Units produced	1,000	1,500	2,000
Units sold	1,000	1,000	1,500
Closing stock		500	1,000

Comparative Income Statement

(Absorption Costing System)

	2018		2019		2020	
	Per Unit Rs.	*Total Rs.*	*Per Unit Rs.*	*Total Rs.*	*Per Unit Rs.*	*Total Rs.*
Variable cost	10	10,000	10.00	15,000	10.00	20,000
Fixed cost	5	5,000	3.33	5,000	2.50	5,000
Total cost of production	15	15,000	13.33	20,000	12.50	25,000
Add: Opening	-	-	-	-	-	6665

stock						
	15	15,000	13.33	20,000	12.50	31,665
Less : Closing Stock	-	-	-	6665	-	12500
Cost of production of goods sold	15	15,000	13.33	13,335	12.50	19165
Profit	5	5,000	6.67	6665	7.50	10835
Sales	20	20,000	20.00	20,000	20.00	30,000

Comparative Income Statement (Marginal Costing System)

	2018		2019		2020	
	Per Unit Rs.	Total Rs.	Per Unit Rs.	Total Rs.	Per Unit Rs.	Total Rs.
Variable cost	10	10,000	10	15,000	10	20,000
Add: Opening stock	---	---	---	---	---	5,000
	10	10,000	10	15,000	10	25,000
Less: Closing stock	---	---	---	5,000	---	10,000
Cost of production of goods sold	10	10,000	10	10,000	10	15,000
Sales	20	20,000	20	20,000	---	30,000
Contribution	10	10,000	10	10,000		15,000
Less: Fixed cost		5,000		5,000		5,000
Profit		5,000		5,000		10,000

From the above illustrations, the following general rules can be made out:

- The profit under the Traditional Costing System and the Marginal Costing System will be the same if there are no opening and closing stocks.
- If there is closing stock (and no opening stock), the profit under the Traditional Costing system will be more than Marginal Costing System.
- If there is opening stock (and no closing stock), the profit under the Marginal Costing system will be more than the profit under Traditional Costing System.
- Suppose the quantity of closing stock is more than the quantity of the opening stock (presuming that both opening and closing stocks are valued at uniform prices). In that case, profit under Traditional Costing System will be more than profit under Marginal Costing System and *vice versa*.

Activity 7.1

Prepare a Comparative Inventory and Income Measurement Statement for a firm for years II and III under Absorption and Marginal costing.

The statement for the 1st years is given. You may assume the following for your calculations:

a) Sales annually remain constant at 36,000 units at Rs. 10 per unit.

b) Variable overhead is Re. 1per unit, and fixed overheads are Rs. 20,000 per annum.

c) Production in Year I is 40,000 units, Year II is 50,000 units, and Year III

is 25,000units.

d) Direct materials and labour costs amount to Rs. 6 per unit.

You can further assume that overheads absorption rate and actual overhead costs are the same. From (b) and (c), you will see that the fixed overheads absorption rate is Rs.50,40,80,per unit in the three successive years.

Comparative Inventory and Income Measurement (In thousand rupees)

Year I	Units ('000)	Per Unit Rs.	Absorption			Marginal	
Sales	36	10		360		360	
Cost of Goods Produced							
Direct Material and Labour	40	6	240		240		
Variable Overhead	40	1	40		40		
Fixed Overheads	40	.5	20	300	---	280	
Closing Stock							
Direct Materials and Labour	4	6	24		24		
Variable Overhead	4	1	4		4		
Fixed Overheads	4	.5	2	30	---	28	252
Fixed Overheads							108
Profit							20
				90			88

Year II	Units ('000)	Per Unit Rs.	Absorption	Marginal
Sales				
Opening Stock				
Cost of Goods Produced				
Direct Material and Labour				
Variable Overhead				
Fixed Overheads				
Closing Stock				
Direct Materials and Labour				
Variable Overhead				
Fixed Overheads				
Fixed Overheads				
Profit				

Year III	Units ('000)	Per Unit Rs.	Absorption	Marginal
Sales				
Opening Stock				
Cost of Goods Produced				

Direct Material and Labour	
Variable Overhead	
Fixed Overheads	
Closing Stock	
Direct Materials and Labour	
Variable Overhead	
Fixed Overheads	
Fixed Overheads	
Profit	

7.5 MARGINALCOST

The technique of marginal costing is concerned with marginal cost. It is, therefore, necessary for you to understand the term 'Marginal Cost correctly'. The Institute of Cost and Management Accountants, London, has defined Marginal Cost as "the amount at any given volume of output by which aggregate costs are changed if the volume of output is increased by one unit". On analysing this definition, we can conclude that the term "Marginal Cost" refers to an increase or decrease in the amount of cost based on the increase or decrease of production by a single unit. The unit may be a single article or a batch of similar articles. This will be clear from the following example.

A factory produces 500 tricycles per annum. The variable cost per tricycle is Rs 100. The fixed expenses are Rs 10,000 per annum.

Thus, the cost sheet of tricycles will appear as follows:

	Rs.
Variable Cost (500 x Rs. 100)	50,000
Fixed cost	10,000
	60,000

If production is increased by one unit, i.e. it becomes 501 tricycles per annum; the cost sheet will then appear as follows:

	Rs.
Variable Cost (501 x Rs. 100)	50,100
Fixed cost	10,000
	60,100

Marginal cost per unit is, therefore, Rs 100

Marginal cost ordinarily is equal to the increase in total variable cost. Within the existing production capacity, an increase of one unit in production will

cause an increase in variable cost only. The variable cost consists of direct materials, direct labour, variable direct expenses and variable overheads. The term `all variable overheads' includes variable overheads plus the variable portion contained in semi- variable overheads. This portion has to be segregated from the total semi-variable overheads according to the methods to be discussed later.

The accountant's concept of marginal cost is different from the economist's concept of marginal cost. According to economists, the cost of producing one additional unit of output is the marginal cost of production. This shall include an element of fixed cost also. Thus, fixed cost is considered according to the economist's concepts of marginal cost, but not according to the accountant's concept. Moreover, with additional production, the economist's marginal cost per unit may not be uniform since the law of diminishing (or increasing) returns may be applicable, while the accountant's marginal cost is taken as constant per unit of output with additional production.

Illustration 7.8

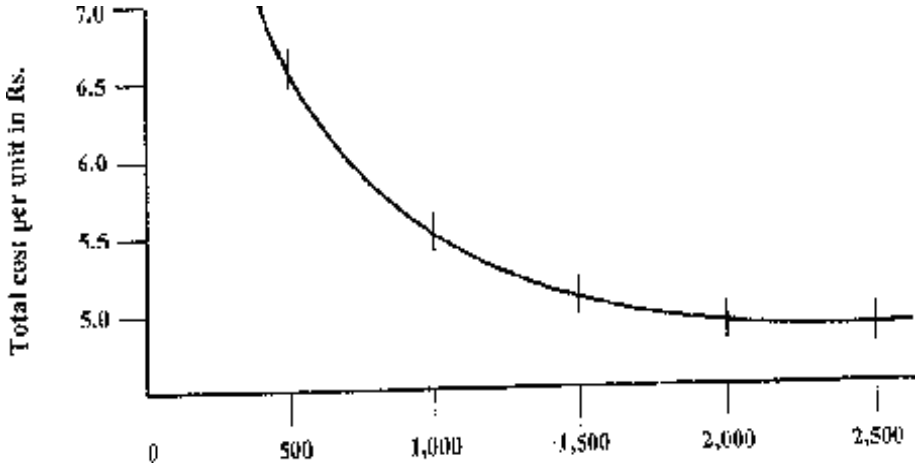
Following information related to a factory which manufactures fans:

Production in units	Direct Material Rs.	Direct Labour Rs,	Other Variable Costs Rs.	Fixed Costs Rs.	Total Cost Rs.
500	1,000	750	500	1,000	3,250
1,000	2,000	1,500	1,000	1,000	5,500
1,500	3,000	2,250	1,500	1,000	7,750
2,000	4,000	3,000	2,000	1,000	10,000
2,500	5,000	3,750	2,500	1,000	12,250

Let us see the effect of the increase in output on the per unit cost of production through a graph and calculate the marginal cost of production.

Production units	Total Variable Cost per unit Rs.	Fixed Cost per unit Rs.	Total Cost per unit Rs.
500	4.50	2.00	6.50
1,000	4.50	1.00	5.50
1,500	4.50	0.67	5.17
2,000	4.50	0.50	5.00
2,500	4.50	0.40	4.90

Graph Depicting Total Cost per Unit at Varying Levels of Output



Production (Units)

The above graph shows that with an increase in production, the total cost per unit is decreasing. This happens because the fixed overheads that are constant at all the levels of output are spread over successively larger outputs. Hence cost of output per unit goes on decreasing with every increase in the volume of output. It will be seen that while the marginal cost of production per unit remains constant (at Rs. 4. 50), the fixed cost per unit decreases from Rs. 2 to 0.40. This phenomenon will considerably motivate the firm in its decision to increase production, as in the present illustration.

Marginal cost under the present illustration can be calculated with the help of the following formula:

Marginal Cost = Direct Material Cost + Direct Labour Cost + Other Variable Costs

or =Total Cost - Fixed Cost

When the production is 500 units, the marginal cost of production shall be equal to Rs. 1,000 +Rs. 750 + Rs. 500, i.e., Rs. 2,250 (or Rs. 3,250 - Rs. 1,000). Marginal cost at other levels of output can be figured out in a similar fashion.

7.6 SEGREGATION OF SEMI-VARIABLE COSTS

As explained earlier, Marginal Costing Method requires the segregation of all costs into two parts-fixed and variable. This means that the semi-variable costs will have to be segregated into fixed and variable elements.

This may be done using any of the following methods:

- Levels of output compared to levels of expenses method,
- High-low method,
- Degree of variability Method,
- Scatter graph method,
- Least-squares method.

Each of the above methods has been discussed in detail with the help of the following illustration:

Illustration 7.9

	Production Units	Semi-variable expenses
July 2020	100	300
August 2020	60	264
September 2020	160	400
October 2020	120	340
November 2020	200	460
December 2020	140	380

During January 2021 the production is 80 units only. Let us calculate the amount of fixed, variable and total semi-variable expenses for the month.

Levels of Output to Levels of Expenses Method

According to this method, the difference in output at two different points of time is compared with the corresponding difference in expenses. Since the fixed portion of expenses remains constant, any increase or decrease in total semi-variable expenses must be attributed to the variable portion. The variable cost per unit can be derived by dividing the difference in (total) semi-variable expenses with the difference in output levels at two time points.

Taking the figures for September and November of the illustration given above, we can calculate fixed and variable components of semi-variable costs:

Month	Production units	Semi-variable expenses(Rs.)	Fixed (Rs.)	Variable (Rs.)
September	160	400	160*	240
November	200	460	160**	300
Difference	40	Rs.60		

The variable element included in semi-variable expenses is:

$$= \frac{\text{Change in amount of expenses}}{\text{Change in activity or quantity}}$$

$$= \frac{60}{40} = \text{Rs. } 1.50 \text{ per unit}$$

***Variable overheads for September= 160 x Rs. 1.50 = Rs, 240**

Fixed overheads for September = Rs. 400 - Rs. 240 = Rs.160

** Overheads (into fixed and variable components) for November have been computed in a similar manner.

Semi-variable Overheads for January:		Rs.
Variable overheads for January 80 x Rs. 1.50	=	120
Fixed overheads		160
		280

High-Low Method

This method is similar to the previous method except that only the highest and the lowest levels of output rate are considered out of various levels. This method is also known as the Range Method.

The highest production in the illustration is in November, while the lowest is in August. The figures for these two months, therefore, have been considered.

Month	**Production units**	**Semi-variable expenses(Rs.)**	**Fixed (Rs.)**	**Variable (Rs.)**
August	60	264	180**	84*
November	200	460	180**	280
Difference	140	196		

Variable element: 196/140, i.e., Re 1.40 per unit.

* Variable overheads for August = 60 x Rs. 1.4 = Rs.84 Fixed overheads for August = Rs. 264 - 84 = Rs.180

** Similarly, the fixed and variable overheads for November have been ascertained.

Semi Variable overheads for January:	**Rs.**
Variable overheads for January: 80 x Rs. 1.40	112
Fixed overheads	180
	292

The High - Low Method takes into consideration two sets of data instead of all the data. The two sets of data are the high-cost point and the low-cost point relating to a. specific measure of output such as the number of units produced (as in our Illustration), labour hours, machine hours etc.

As the results in High-Low method are based on observation of extreme data, the results may not be very accurate. Because of relying only on the extreme points, the basis computed for segregation of fixed and variable costs may not be representative of a normal situation. As such, the High-Low method is generally not recommended. Though a crude alternative to more elaborate Least Squares, this method can give fairly acceptable results if the high and low points are chosen with careful consideration of the data.

Degree of Variability Method

In this method, the degree of variability is estimated for each item of semi-variable expenses. Some semi-variable items may have 40% variability, while others may have 60% variability. The method is simple to understand. However, determining the degree of variability may be quite difficult.

Assuming the degree of variability is 60% in semi-variable expenses and taking the month of October as a basis, the analysis can be done as under:

Variable element = (60% of Rs. 340) i.e. Rs. 204 Fixed element = Rs. 340-204 = 136

On the above basis, the variable expenses for 80 units (the production of January 2021) will be as follows:

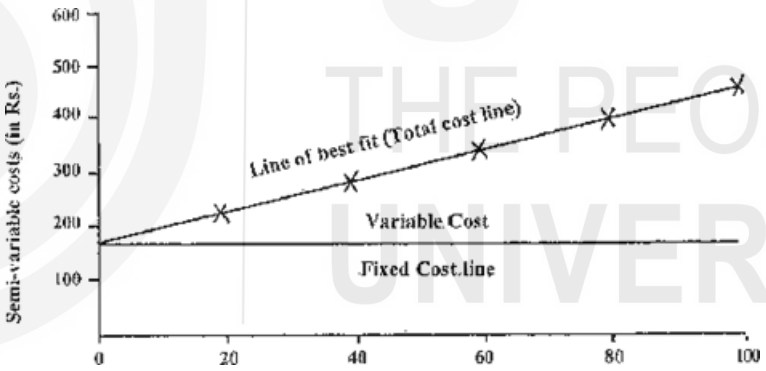
$$\text{Rs. } \frac{204 \times 80}{120} = \text{Rs. } 136$$

Hence, the total semi-variable expenses for January, 2021 are Rs. 136 + Rs. 136 = Rs. 272.

Scatter graph Method

In this method, the given data are plotted on graph paper, and a line of best fit is drawn. The method is explained below:

- The volume of production is plotted on the horizontal axis, and the costs are plotted on the vertical axis.
- Corresponding costs of each volume of production are then plotted on the paper. Thus several points are shown on it.
- A straight line of best fit is then drawn through the points plotted. This is the total cost line. The point where this line intersects the vertical axis is taken to be the amount of fixed element.
- A line parallel to the horizontal axis is drawn from the point where the line of best fit intersects the vertical axis. This is the fixed cost line.
- The variable cost at any level can be known by noting the difference between fixed cost and total cost lines.



An observation of the graph tells us that fixed expenses are Rs 170 approximately.

For January 2021, the semi-variable expenses are Rs. 290 (which can be ascertained from the line of best fit in the graph at the level of 40 units). As such, the variable expenses will be Rs. 120 (Rs. 290-170).

Method of least squares

This method is based on the mathematical technique of fitting an equation with the help of many observations. The linear equation, i.e., a straight line equation, can be assumed as:

$y = a + bx$ and the various sub-equations shall be

$$\sum y = na + b\sum x;$$

$$\sum xy = a\sum x + b\sum x^2;$$

An equation of second order, i.e., a curvilinear equation, can be drawn as

$y = a + bx + cx^2$ and the various sub-equations to solve it (i.e., to find out the values of constants a, b and c,shall be:

$$\sum y = na + b\sum x^2;$$

$$\sum xy = a\sum x + b\sum x^2 + c\sum x^3;$$

$$\sum x^2y = a\sum x^2 + b\sum x^3 + c\sum x^4.$$

A linear equation can be obtained with the help of the following values thus:

Months	Production (units) x	Expenses Rs. y	x^2	xy
July 2020	100	300	10,000	30,000
August 2020	60	264	3,600	15,840
September 2020	160	400	25,600	64,000
October 2020	120	340	14,400	40,800
November2020	200	460	40,000	92,000
December 2020	140	380	19,600	53,200
Total	$\sum x = 780$	$\sum y = 2,144$	$\sum x^2 = 1,13,200$	$\sum xy = 2,95,840$

Assuming the equation as $y = a + bx$, we have to find the values of constants a and b with the help of the above figures. The other two equations are:

$$\Sigma y = na + b\Sigma x$$
$$\Sigma xy = a\Sigma x + b\Sigma x^2$$

Putting the values in these equations, we have

$$2,144 = 6a + 780b$$
$$2,95,840 = 780a + 1,13,200b$$

Multiplying equation (iii) by 130 and deducting it from (iv), we get

$$17120 = 11800\ b;\ \text{or}\ b = 1.45\ \text{(approx.)}$$

Putting the value of b in equation (iii), we can know the value of a:

$$a = \frac{2144 - (780 \times 1.45)}{6} = 168.83\ \text{(approx.)}$$

7.7 CONTRIBUTION

∴ The desired equation is:
$y = 168.83 + 1.45 x$

Rs. 168.83 is the amount of fixed element and Rs. 1.45 is the rate per unit for variable element.

After putting the value of x, i.e. 80 units for January 2003, the total semi-variable expenses for the month can be ascertained as follows:

Rs. 168.83 + (Rs. 1.45 × 80), i.e. Rs. 284.83

It has already been stated earlier in the unit that the difference between selling price and variable cost (i.e. the marginal cost) is known as 'Contribution' or 'Gross Mar- gin'. In other words, the contribution is the sum of fixed costs and the amount of profit. The following formula can express it.

Contribution = Selling Price-Variable Cost or = Fixed Cost + Profit

From the above, we can conclude that profit cannot result unless contribution exceeds fixed costs. In other words, the point of no profit no loss will be at a level where contribution is equal to fixed costs. Let us take an example.

Variable cost		Rs. 5,000
Fixed cost		Rs 2,000
Selling Price		Rs. 8,000
Contribution		Selling Price – Variable cost
	=	
	=	Rs. 8,000 – Rs. 5,000
	=	Rs. 3,000
Profit	=	Contribution – Fixed cost
	=	Rs. 3,000 – Rs. 2,000
		Rs. 1,000

As contribution exceeds fixed cost there is a profit of Rs. 1,000. If fixed cost is assumed at Rs. 4,000, the position will change as under:

Contribution – Fixed Cost = Profit (Loss) Rs. 3,000 – Rs. 4,000 = (Rs. 1,000)

The sum of Rs. 1,000 represents the extent of loss since the fixed costs are more than contribution. At the level of a fixed cost of Rs. 3,000, there shall be no profit and no loss. The concept of Break-even Analysis emerges out of this basic fact.

7.8 BREAK-EVEN ANALYSIS

The term 'Break-even Analysis refers to a system of determination of that level of activity where total cost equals total selling price. However, in the broader sense, it refers to that system of analysis that determines the probable profit at any level of activity. The relationship between cost of production, volume of production, profit and sales value is established by break-even

analysis. The analysis is also known as Cost-Volume-Profit analysis.

Break-even analysis is helpful for a manager in the following ways:

- It helps him in forecasting the profit reasonably accurately.
- It helps set up flexible budgets based on Cost-Volume
- Profit relationship, one can ascertain the costs, sales and profits at different levels of activity.
- It assists in performance evaluation for purposes of management control.
- It helps in formulating price policy by projecting the effect of different price structures on costs and profits.
- It helps determine the amount of overhead cost to be charged at various levels of operations since overhead rates are generally pre-determined on the basis of a selected volume of production.

Thus, cost-volume-profit analysis is an important medium through which one can have an insight into effects on profit due to variations in costs (both fixed and variable and sales (both volume and value). This enables us to make appropriate decisions. This aspect will be discussed in detail in the following unit of this course. However, it will be expedient for us to understand the meaning of and the technique of determining the break-even point.

Break-even Point

It refers to that level of activity where the income of the business exactly equals its expenditure. In other words, it is a `no profit, no loss' point. If production is increased beyond this level, profit shall accrue to the business, and loss shall be suffered if it is decreased below this level.

The Break- even point can be determined according to following formulae:

Break- even point in output = Fixed Cost/Contribution per unit

Break- even point in sales = (Fixed Cost/Contribution per unit) X selling price per unit

Or $\frac{Fixed\ Cost}{Total\ contribution} \times total\ sales$

Or $\frac{Fixed\ Cost}{1-\frac{Variable\ cost\ per\ unit}{Selling\ price\ per\ unit}} \times selling\ price\ per\ unit$

Or $\frac{Fixed\ Cost}{\frac{P}{V}ratio}$

At the break-even point, the profit is zero. In case the volume of output of sales is to be computed for ‘a desired profit’. The amount of ‘desired profit’ should be added to fixed costs in the formulae given above. For example.

$$\text{Units for a desired profit} = \frac{\text{Fixed Costs + Desired Profit}}{\text{Contribution per unit}}$$

$$\text{Sales for a desired profit} = \frac{\text{Fixed Costs + Desired Profit}}{\text{P/V Ratio}}$$

This will be clear from the following illustration:

Illustration 7.10

A factory manufacturing fans has the capacity to produce 250 fans per annum. The marginal (variable) cost of a fan is Rs. 400, which is sold for Rs. 500. Fixed overheads are Rs.12,000 per annum. Let us calculate the break-even points for output and sales and show what profit will result if the output is 90% of capacity?

Contribution per fan is Rs. 500 - Rs. 400 Rs. 100.

Break-even Point for Output

(Output which will give 'contribution' equal to fixed costs Rs. 12,000).

$$\text{BEP (for output)} = \frac{\text{Total Fixed costs}}{\text{Contribution per unit}}$$

$$= \frac{12,000}{100} = 120 \text{ fans}$$

Break-even Point for Sales

$$\text{BEP (for sales)} = \text{Output} \times \text{Selling price per unit}$$
$$= 120 \times \text{Rs. } 500 = \text{Rs. } 60,000$$

Break-even point for sales can also be calculated with the help of any of the following formulae:

i) $$\text{B.E.P.} = 1 - \frac{\text{Total fixed cost}}{\text{Variable cost per unit}} \Big/ \text{Selling price per unit}$$

$$= \frac{12,000}{1 - \frac{400}{500}}$$

$$= \frac{12,000}{1/5} = \text{Rs } 60,000$$

OR

ii) $= \frac{\text{Total Fixed Costs} \times \text{Total Sales}^*}{\text{Total Contribution}^*}$

$= \frac{12,000 \times 1,25,000}{25,000} = \text{Rs.}60,000$

(*have been calculated on full capacity of 250 units)

OR

iii) B.E.P. $= \frac{\text{Total Fixed Cost} \times \text{Selling Price per unit}}{\text{Contribution per unit}}$

$= \frac{12,000 \times 500}{100} = \text{Rs.}60,000$

iv) B.E.P. $= \frac{\text{Total Fixed Costs}}{\text{P/V Ratio}}$

$= \frac{12,000}{20\%} = \text{Rs.}60,000$

P.V. Ratio $= \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{25,000}{1,25,000} \times 100 = 20\%$

Profit at 90% of the capacity has been calculated as follows:

Capacity	250 fans
Output at 90% capacity	225 fans
Break-even point of output	120 fans

Since fixed overheads will be recovered in full at the break-even point, the entire contribution beyond the break-even point will be the profit. The profit on 225 units, therefore, will be:

$= \text{Rs. } 100 \times (225 - 120) = \text{Rs. } 10,500$

Activity 7.2

Consider any profit-oriented organisation. Talk to a well informed functionary of Accounting and Finance Department of such an organisation regarding its break-even point. At what percentage of the capacity the organisation is having its break-even point presently? Analyse in terms of the break-even point it had 3-5 years ago. Has break-even point moved downward or upward? Why?

……

……

……

……

7.9 UTILITY OF MARGINALCOSTING

The technique of Marginal Costing is of immense use to the management in taking various decisions, as explained below:

Helps in determining the volume of production: Marginal Costing helps in deter- mining the level of output which is most profitable for a running concern. The production capacity, therefore, can be utilised to the maximum possible extent. It helps determine the most profitable relationship between cost, price, and volume in the business, which helps the management fix the best selling price for its products. Thus, maximisation of profit can be achieved. This has been explained in greater detail in a separate unit.

Helps in selecting production lines: The Marginal Costing technique helps determine the most profitable production line by comparing the profitability of different products. Certain products or activities may turn out to be unprofitable with the passage of time. Production of such products can be discontinued while production of the more profitable products can be taken up. It can help introduce new products and work as a good guide for deciding the optimum mix of products keeping in mind the available capacity and resources.

Helps in deciding whether to produce or procure: Whether a particular product should be manufactured in the factory or procured from outside sources can be taken by comparing the prices for both. If the procurement price is lower than the marginal cost of production, it will be advisable to procure the product from outside rather than manufacture it in the factory.

Helps in deciding method of manufacturing: In case a product can be manufactured by two or more methods, ascertaining the marginal cost of manufacturing the product by each method will help decide which method should be adopted.

Helps in deciding whether to shut down or continue: Marginal Costing, particularly in periods of trade depression, helps in deciding whether the production in the plant should be suspended temporarily or continued in spite of low demand for the firm's products. This can be understood with the help of the following illustration.

Illustration 7.11

A company has a manufacturing capacity of 1,000 units per month. The cost details are as under:

Direct Material	Rs. 3 per unit.
Direct labour	Rs. 2 per unit.
Variable overheads	Rs. 1 per unit.
Fixed overheads	Rs. 2,000 per month.

The Company has been selling its products at Rs. 10 per unit.

Due to depression in the market, the product can now be sold only at Rs. 7

per unit. The depression is expected to continue for a period of three months. The accountant advises you to discontinue production since the selling price is less than the total cost of the product. What would be your reaction?

The accountant of the company seems to have calculated the total cost per unit according to Absorption Costing technique as under:

Rs.

Direct material	3
Direct labour	2
Variable overheads	1
Fixed overheads (2,000/1000)	2
Total cost	8

As the cost per unit is Rs. 8 compared to the expected selling price of Rs. 7, the accountant obviously has advised the management to suspend the production till the situation returns to normal.

However, the decision to suspend production even in this unusual situation is not in the interest of the company. The fact of the matter is that despite suspending production, the company will still have to incur a fixed cost of Rs. 2,000 per month. If the company continues to manufacture and sell the product, it will be in a position to reduce its loss to Rs. 1,000 per month, as shown below:

	Rs.	**Rs.**
Selling price per unit		7
Less: Variable Cost		
Direct material	3	
Direct labour	2	
Variable overheads	1	6
Contribution		1

The total contribution on 1,000 units will amount to Rs. 1,000, and this will go to some extent in recovering the fixed cost per month of Rs. 2,000. As such, the net loss will be limited to Rs. 1,000 only as compared to Rs. 2,000, if production is suspended.

7.10 LIMITATIONS OF MARGINALCOSTING

Marginal Costing technique has some limitations as explained below:

Difficulty in the classification of costs between fixed and variable elements: It is tough to analyse costs under ‘fixed’ and ‘variable’ elements. The nature of costs in several cases may not be very clear. Moreover, some items of costs may be partly fixed and partly variable. Splitting such costs into fixed and variable components may have to be based on assumptions. Besides, some overheads may have no relation either with the volume of output or with the time factor. As such, they cannot logically be categorised either as fixed or variable. The management's decisions regarding bonuses to workers, facilities to administrative staff, etc. are some such examples.

Difficult application: Marginal Costing technique is challenging to apply in many firms. Its scope is highly circumscribed where job costing is the need.

Notwithstanding the limitations mentioned above of marginal costing it is regarded as an advantageous technique for analysing several business decisions.

7.11SUMMARY

Marginal Costing and Absorption Costing are the two techniques that can ascertain the cost of a product, job, or process. Absorption Costing is also termed as Traditional or full Cost method. According to this technique, the cost of a product is determined after considering both fixed and variable costs. In other words, all costs are identified with or absorbed into the manufactured products. Marginal Costing is a technique where only the variable costs are considered while computing the cost of products. The fixed costs are met against the total contribution of all the products taken together.

Marginal Costing is regarded as superior to traditional costing so far as managerial decision-making is concerned. It identifies only such costs with the jobs or products, which directly vary with the level of output. The uncertainty and irrationality associated with apportionment of fixed cost in traditional costing is thus avoided.

The technique of Marginal costing greatly helps the management in taking appropriate managerial decisions, viz., dropping a product line, making or buying a component, shut-down or continuation of operations in periods of trade depression, fixation of the minimum selling price of a product, etc.

Marginal Costing involves computation of the marginal cost. The term marginal cost is synonymous with the term `variable cost'. It comprises of direct material, direct labour, variable direct expenses and variable overheads.

The semi-variable overheads are also segregated into fixed and variable categories according to some suitable method. Such segregation of costs into fixed and variable categories also helps determine the break-even or no profit no loss point. A firm will start making profits only after it reaches the break-even level. The sooner it reaches this level, the better it will be. Hence, the break-even level of activity is also of considerable significance to management.

Marginal Costing technique has some limitations. The categorisation of costs into fixed and variable elements is a tedious and challenging task. However, despite these limitations, marginal costing is regarded as a highly useful technique of analysis for several business decisions.

7.12 KEYWORDS

Absorption Costing: A technique where all costs, fixed and variable, are allotted to cost units.

Break-even Point: It refers to the level of activity where the income of the

business exactly equals its expenditure. It is also termed as `no profit, no loss' point.

Contribution It refers to the excess of selling price over variable cost.

Marginal Cost The variable cost of one more unit of a product or service, i.e. a cost which would be avoided if the unit was not produced or service not provided.

Marginal Costing: A technique whereby the marginal cost of a product is ascertained. Only variable costs are charged to production. Fixed costs are charged against the contribution of the period. It is also termed as 'variable costing'.

7.13 SELF-ASSESSMENT QUESTIONS/EXERCISES

a) Explain the technique of Marginal Costing briefly. In what ways you consider this technique useful in Management Accounting?

b) a) Explain and bring out the means of income determination in a comparative form under marginal and traditional costing systems.

b) Explain the different methods for segregating semi-variable overheads.

c) What benefits are gained from Marginal Costing? Are there any pitfalls in its application?

d) State whether each of the following statements is True or False:

- Fixed costs are included in the valuation of work-in-progress and finished goods stocks under marginal costing.
- The valuation of stock is higher in absorption costing as compared to marginal costing.
- Semi-variable costs form a part of the product cost in marginal costing.
- Absorption costing is not as suitable for decision-making as marginal costing is.

True ☐

True ☐

False ☐

False ☐

False ☐

e) From the following, choose the most appropriate answer:

7 The contribution margin is also known as

(a) Marginal Income; (b) Gross Profit; (c) Net Income.

8 Period cost means:

(a) Variable cost; (b) Fixed Cost; (c) Prime cost.

9 If fixed cost is Rs. 10,000 and P/V ratio is 50%, the break-even point will be: (a) Rs. 20,000 (b) Rs. 40,000 (c) Rs. 50,000 (d) None of these.

10 If Profit-Volume Ratio is 40% and sales value Rs. 10,000, the variable costs will be:

(a) Rs. 4,000 (b) Rs. 40,000 (c) Rs. 10,000 (d) None of these.

11 If sales are Rs. 2 lakhs, fixed cost Rs. 30,000, P/V ratio 40%, the amount of profit will be:

(a) Rs. 50,000 (b) Rs. 80,000 (c) 12,000.

f) Fill in the blanks:

- The technique of Marginal Costing is based on the classification of costs into… costs.
- Contribution is the difference between sales and……..
- In marginal costing stock of finished ..... goods is valued at… cost.
- Both fixed and variable costs are charged..... to products under…costing.
- Profit-Volume ratio shows the relationship between……..…and…….……
- At the break-even point, the total cost is equal to…….
- At the break-even point, the contribution will be equal to……..

g) Hansa Ltd. produces a standard type of article. The results of the last four quarters of the year 2020 are as follows:

Quarters	Output (Units)
I	200
II	300
III	400
IV	600

The cost of direct material is Rs.60, and direct labour is Rs. 40 per unit. Variable expenses are Rs 20 per unit. Fixed expenses are Rs. 1,20,000 per annum. Find out cost per unit of each quarter.

h) From the following data, prepare statements of cost according to both absorption costing and marginal costing technique:

Sales	Product X	Products Y	Product Z
	Rs.15,000	Rs.30,000	Rs.40,000
Direct Material	6,000	12,500	18,000
Direct Labour	4,000	5,000	7,000
Factory overheads:	3,000	4,000	3,000
Fixed			
Variable	1,000	1,500	2,500
Administrative overheads	500	1,000	1,000
Fixed			
Selling Overheads	1,000	1,000	1,500
Fixed			
Variable	500	1,500	1,500

i) Production costs of Ambitious Enterprises Limited are as follows:

Levels of Activity			
Output (in Units)	60%	70%	80%
	2,400	2,800	3,200
Cost (in Rs)			
Direct Materials	24,000	28,000	32,000
Direct Labour	7,200	8,400	9,600
Factory overheads	12,800	13,600	14,400
Works Cost			
	44,000	50,000	56,000

The management is considering a proposal to increase production to a 90% level of activity. The proposal is not expected to involve any increase in fixed factory overheads.

You are required to prepare a statement showing the prime cost, total marginal cost and total factory cost at 90% level of activity.

(Hint: Fixed Overheads Rs. 8,000)

j) The following figures relate to the repairs and maintenance costs incurred in a machine shop and the corresponding machine hours for a period of six months:

Month	Machine hours	Repairs & Maintenance
January	2,000	3,000
February	2,200	3,200
March	1,700	2,700
April	2,400	3,400
May	1,800	2,800
June	1,900	2,900
Total	12,000	18,000

You are required to segregate the repairs & maintenance costs into fixed and variable elements.

k) The following data are obtained from the records of a company:

First year	Second year	
Sales	Rs.1,60,000	Rs.1,80,000
Profit	20,000	28,000

Calculate the break-even point.

l) From the following data, calculate:

Break-even point expressed in rupee sales.

1. The number of units that must be sold to earn a profit of Rs. 1,00,000 per year.

Selling price	Rs. 20 per unit
Variable manufacturing costs	Rs. 10 per unit
Variable selling costs	Rs. 5 per unit

Fixed Factory overheads	Rs. 5,00,000 per year
Fixed selling costs	Rs. 2,00,000 per year

m) Ahmed Khan sells a popular brand of men's sports shirts at an average price of Rs.28 each. He purchased the shirt from a supplier at a unit cost Rs.18.The costs of operating his shop are all fixed costs and amount to Rs.54,000 a year. He pays commission to his sales meant the rate of Re.1on each shirt sold.

Required: i) How many shirts must be sold in a year to break even?

i) Compute the sales revenue at the break-even.

ii) Compute the monthly sales revenue required to earn a net profit before tax of Rs.45,000 a year.

Answer to Activity 7.1

	Year III			
	Absorption Costing	Marginal Costing	Absorption Costing	Marginal Costing
Inventory	133.20	126	54.60	49
Profit	93.20	88	86.40	88

While Profit under Marginal Costing is the same for all three years, it is different under Absorption costing. Why? Please read the text and attempt the answer:

Answers to Self-assessment Questions/Exercises

a) (a) False; (b) True; (C) False; (d)True

b) (i) a (Marginal Income); (ii) b (Fixed Cost) (iii) a (Rs.20,000); (iv) d (Rs.6,000) (v) a (Rs.50,000)

c) (a) Fixed and variable; (b) variable costs; (c) marginal; (d) absorption; (e) contribution, sales, (f) total sales; (g) fixed costs

7 (i) Rs.270, (ii) Rs.220, (iii) Rs.195.0, (iv)Rs.170.0

- Absorption Costing Profit: Product X Rs(-) 1,000, Product Y Rs.3,500; Product Z Rs.5,500; Marginal Costing Contribution: Product X Rs. 3,500 Product Y Rs.9,500, Products Z Rs.11,000
- Prime cost Rs. 46,800; Marginal Cost Rs. 54,000; Works Cost Rs. 62,000
- Fixed Cost Rs.1,00011. Rs.1,10,000

12. (1) Rs. 28,00,000; (ii) 1,60,000units,

13. (i)6,000shirts(ii)Rs.1,68,000(iii)Rs.25,667

7.5 FURTHER READINGS

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UNIT 8 ACTIVITY BASED COSTING

Objectives

After you have studied this unit, you would be able to:

- Understand the concept of Activity Based Costing (ABC) and its objectives and features.
- Identify the difference between Traditional Costing and ABC.
- Comprehend the usages of ABC
- Recognise the Cost drivers and their types.
- Understand other related terms to ABC

Structure

8.1 Introduction

8.2 Importance of Activity Based Costing

8.3 Objectives of Activity Based Costing

8.4 Merits and Demerits of Activity Based Costing

8.5 Process in Activity Based Costing

8.6 Few other Terms

8.7 Activity

8.8 Limitations of Activity Based Costing

8.9 Summary

8.10 Key Terms

8.11 Self-Assessment Questions

8.12 Further Readings

8.1 INTRODUCTION

Activity-Based Costing (ABC) is a system of costing, where costs are first traced to activities and then to products. This costing system works with an assumption that activities are responsible for the costs that are incurred. As stated earlier, costs are charged to products based on the individual product's use for each activity.

The Chartered Institute of Management Accountants, UK (CIMA) defines[1] ABC as "*an approach to the costing and monitoring of activities which involves tracing resource consumption and costing final outputs. Resources are assigned to activities, and activities to cost objects based on consumption estimates. The latter utilise cost drivers to attach activity costs to outputs"*.

[1]https://www.cimaglobal.com/Documents/ImportedDocuments/cid_tg_activity_based_costing_nov08.pdf.pdf

The important issues of the definition are as follows:

- ABC is a tactic to the costing and does monitoring of activities in a process.
- It traces the consumption of resources and then the costing of resultant outputs.
- In this, resources are assigned to activities and then activities to cost objects based on consumption estimates.
- It utilises identified cost drivers to assign activity costs to depicted outputs.

Another description of Activity-based costing is that it is a two-stage based costing method that allocates indirect costs and overheads to products and services.

Some costs are tough to assign to a product or a service. It identifies the connection between overheads and manufactured products and gives indirect costs to the products. The method is less arbitrarily than the traditional costing system.

Features of Activity Based Costing (ABC)

Features of Activity Based Costing are as follows:

- ABC is a modern approach to the allocation of indirect costs. Costs allocated to each activity symbolise the resources consumed by the activity.
- As done in conventional costing, ABC is not restricted to the allocation of indirect costs to departments. It moves further to identify the individual activity for indirect cost allocation as the lowest unit.
- Based on consumption, resources are allotted to each activity and then to cost objects.
- ABC identifies the activities using the activity cost drivers and results in a more accurate cost calculation.
- This approach facilitates easy identification of cost according to activities cost driver.
- This costing method is suitable if there is more than one product in the manufacturing line and overheads have a high share in total cost.
- This approach creates a straight cause and effect association with various resources.

Development of Activity Based Costing

Limits of the traditional costing system gave way for the development of ABC. The traditional arrangement segregates costs into fixed and variable. As the business grows, the costs become more complex, and then the traditional approach may not be appropriate for making complex decisions related to production and developing product strategies.

The traditional methods facilitate financial reporting and primarily put

prominence on calculating overhead rates for the valuation of stocks. It was seen that the traditional absorption costing approach could not go well with multi-product scenarios, so a change was in line. In fact, multiple-products scenario or product diversification requires accurate product cost ascertainment due to increasing market competition within the country and internationally.

In the 1980s, ABC was first defined by Kaplan and Bruns[2]. It was taken as the modern alternative to absorption costing, which could define product and profitability in a better way. It provides better information to make more effective decisions.

Activity Based Costing Vs Traditional Costing System

The main difference is presented in Figure no.8.1.

Figure 8.1 Differences between Activity Based Costing and Traditional Costing

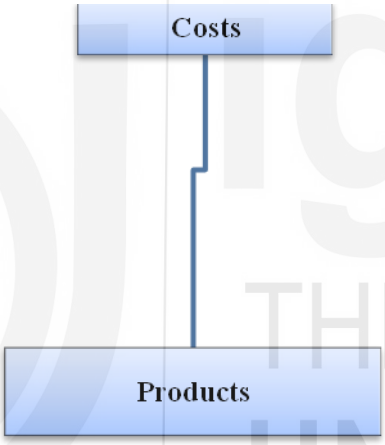


Figure 8.1a Traditional allocation method

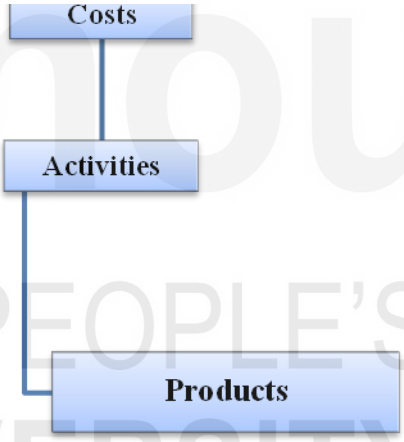


Figure 8.1b Activity based allocation method

Other differences are compiled as follows:

No.	Activity Based Costing	Traditional Costing System
1	Allots overheads on the basis of various cost pools and activities.	Assigns overhead based on a single overhead rate
2	Favourable for technology-driven manufacturing process	Favourable for labour driven manufacturing process
3	Favourable when the overhead increase is based on various activities that different for various product	Favourable when the overhead increases are based on traditional components like labour hours

[2]https://www.cgma.org/resources/tools/essential-tools/activity-based-costing.html

8.2 IMPORTANCE OF ACTIVITY BASED COSTING (ABC)

1. Decision making is one of the significant functions performed by managers. They may adapt the traditional costing system, which may contain errors in costing due to apportionment and absorption techniques. Here, ABC improves the decision-making process by providing correct and relevant product cost data.
2. Multiple cost drivers are used in ABC that are transaction-based than product-based. Cost drivers and rates may also help in the scheming of new products or existing products.
3. ABC follows all activities even outside the factory premises to calculate more overheads. For example, besides the product costs, it touches costs to managerial activities, processes etc.
4. ABC focuses on the cause and effect relationship in costing. This is to bring accuracy and reliability in cost determination. These are the products that are said to have consumed activities.
5. Due to ABC, costs as per activities become visible and more apparent. It can identify actions not adding value to the product. Managers may put more control over the activities and can control fixed overhead costs created by those activities.

8.3 OBJECTIVES OF ACTIVITY BASED COSTING (ABC)

Some objectives of ABC are listed as under:

- To recognise several activities in the process of production, including the activities that add value.
- To eliminate the non value-adding activities.
- To put emphasis on the high-cost activities
- To incorporate activities based on distribution overheads.
- To help in decision-making process in the identification of a suitable price of product and services.
- To ensure accurate and precise cost determination of products and services.
- To find options to improve the process and reduction of costs.

8.4 MERITS AND DEMERITS OF ACTIVITY BASED COSTING (ABC)

Merits

- **Removes Cross Subsidization Issues**

The traditional system gives rise to the issues of over and under-costing. Products may be subject to over-costing, which may result in under costing of other products. ABC may take care of this issue. ABC put the role of activities between costs and products and makes the relationship more explicit.

- **Deals with Complicated Processes**

  There have been growth and development in all walks of life, including production of product and services. Due to this, complications in various processes have risen in the industries too. Now, there are cross-linkages in the production process and costing of products. The number of processes and activities involved in production has increased. ABC deals with these complications in costing that emerged due to processes.

- **Product Customisations**

  Nowadays, production is being done with many variations, in terms of sizes, design etc. If the production takes place on one premise, the costing process will need refinement to price the products suitably. ABC helps here.

- **Identification of Cost Saving Chances**

  In ABC, it is easier to identify cost saving opportunities. It considers costs to all areas, including various processes, products, managerial responsibility, customers, departments etc. It removes the issues related to the error of estimation.

In this system, costs are managed in the long run by controlling the activities that drive them. In other words, the aim is to manage the activities rather than costs. By managing the forces that cause the activities (cost drivers), costs will be managed long-term. Collecting and reporting on the significant activities a business engages in makes it possible to understand and manage costs more effectively[3].

Demerits

- **A Complex System**

  ABC works with various cost pools and drivers. It is assumed to be more complex than the traditional system of product costing. This is one of the demerits. In fact, selection of drivers, common costs, driver rates etc., put forward a complex system.

- **Product and Process should be Fully Known**

  One of the significant demerits is that the people who are employing ABC usually require significant experience in the products and processes of the industry.

  ABC is preferred if the firm uses cost-plus pricing, whereas market-based prices may not favour it.

- **Rely on a sophisticated system**

[3] ColinD .(2000).ManagementandCostAccounting,ThomasonLearning,p.285

ABC requires a minimum level of information technology in the organisation. Much data is needed and processed for implementing a particular decision. Small and new organisations may not take full advantage of ABC, due to poor information technology systems.

- **Consumes a lot of Time and efforts**

  ABC is a time-consuming process. It comprises a number of steps and a lot of groundwork to start and complete the process.

  Organisations may put time and effort if they get utility out of the process. As mentioned earlier also, large manufacturing firms can utilise it better than small firms.

- **Increase in Indirect Costs**

  Due to the high involvement of technology in ABC, indirect costs rise significantly.

8.5 PROCESS OF ACTIVITY BASED COSTING (ABC)

Stages in ABC

Stages of ABC costing are mentioned as follows:



Fig 8.2 Stages in ABC

Steps involved in the ABC are put as under:

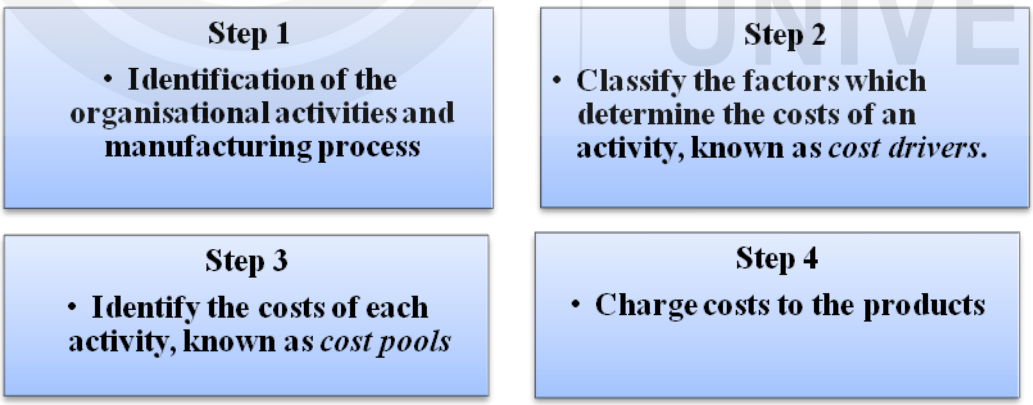

Step 1
• Identification of the organisational activities and manufacturing process
Step 2
• Classify the factors which determine the costs of an activity, known as cost drivers.
Step 3
• Identify the costs of each activity, known as cost pools
Step 4
• Charge costs to the products

Fig 8.3 Steps of ABC

- **Identification of the organisational activities and manufacturing process**

  For ABC, it is indispensable to study the organisational activities and manufacturing process to determine the number of stages involved. By this, all the activities involved in producing the product or service can be identified. ABC believes that activities cause cost.

- **Classify the factors which determine the costs of an activity, known as *cost drivers*.**

  According to CIMA, '*cost driver is any factor which causes a change in the cost of an activity, e.g. the quality of parts received by an activity is a determining factor in the work required by that activity and therefore affects the resources required. An activity may have multiple cost drivers associated with it.'*[4]

  As per this definition, in the traditional system of product costing, the number of cost drivers can be identified as direct labour hours, units produced, etc. In ABC, cost drivers are related more closely to the consumption of resources and activities.

  As mentioned earlier, ABC considers that activities bring about costs, so they are linked, and the identified cost drivers are the linkages amid them.

- **Identify the costs of each activity, known as *cost pools***

  The cost pool concept is similar to the concept of the cost centre. CIMA defines cost pool as *'the point of focus for the costs relating to a particular activity in an activity-based costing system.* 'It is the sum total of the cost elements allotted to an activity. The cost pool is taken as the point of focus to assign the total cost to an activity.

- **Charge costs to the products**

  It is known that ABC is the method of tracing and assigning costs:

  - from resources to activities and then
  - from activities to specific products

The system tries to charge the indirect costs to the products and services.

Illustration:8.1

The budgeted overheads and cost driver volumes of DSS Ltd are as follows.

Cost Pool	Budgeted Overheads (Rs)	Cost Driver	Budgeted Volume
Material procurement	10,80,000	No. of orders	1,300
Material handling	3,50,000	No. of movements	780
Machinery	8,40,000	No. of machine hours	34,000
Maintenance	10,70,000	Maintenance hours	8,900
Quality control	2,66,000	No. of inspection	700
Set-up	4,80,000	No. of setups	620

[4] The Institute of Cost Accountants of India (2014), Cost and Management Accountancy, page 2.74

The company produces 2,450 components of A-1. Its material cost was Rs 1,50,000and the labour cost Rs2,55,000.

The usage activities are:

Material orders are 29. Maintenance hours are 680. Material handling is 21, Quality control inspection are 31, setups are 22, and machine hours are 1,950

Calculate cost driver rates and ascertain the cost of a batch of components using ABC.

Solution:

Computation of Cost Driver Rates

	Particulars		**Amount(**Rs)
1.	Material procurement	1080000/1300	831
2.	Material handling	350000/780	448
3.	Set-up	480000/620	774
4.	Maintenance	1070000/8900	120
5.	Quality control	2,66,000/700	380
6.	Machine hours	840000/34000	25

Computation of Batch Cost of 2600 units of A- 1

Particulars				(Rs)`
Material cost				1,50,000
Labour Cost				2,55,000
Prime Cost				4,05,000
Add:	Overheads			
	Material orders	29x831	24,099	
	Maintenance	680x120	81,600	
	Material handling	21x448	9,408	
	Quality Control	31x380	11,780	
	Set-up	22x774	17,028	
	Machine hours	1950x25	48,750	192,665
Total Cost				5,97,665

Grouping of Activities

For a manufacturing company, activities are classified as follows:

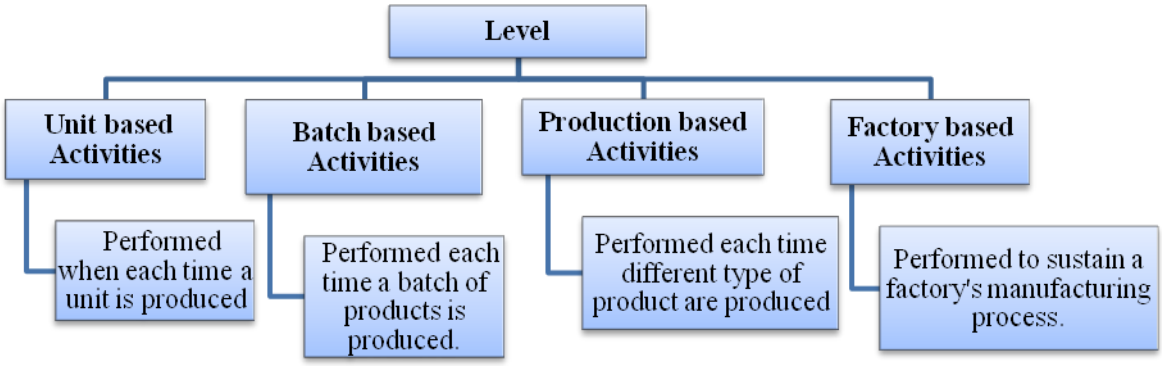

Level
Unit based Activities
Batch based Activities
Production based Activities
Factory based Activities
Performed when each time a unit is produced
Performed each time a batch of products is produced.
Performed each time different type of product are produced
Performed to sustain a factory's manufacturing process.

Fig. 8.4 Levels of Activities

Cost Drivers

Various cost drivers at different levels, as mentioned above, are as follows:

S.No.	Cost Drivers	S.No.	Cost Drivers
1	Production orders received.	10	Machine hours used
2	Purchase orders	11	Setup hours
3	Orders received in other departments	12	Direct labour hours
4	Order processed	13	Vendors numbers
5	Number of units produced	14	Units scrapped
6	Labour cost incurred.	15	Employees
7	Materials used in a product.	16	Maintenance
8	Materials handling hours	17	Testing charges
9	Factory Management	18	Security
10	Inspections	19	Others

Illustration 8.2

Suraj Enterprise has decided to use Activity based costing (ABC) method based on the following activities:

Activity	Annual cost driver	Cost	Cost driver
Machine	40,000 hours	10,00,000	600 hours
Labour	Rs.6,00,000	60,000	Rs.14,000
Setup	20,000 hours	2,00,000	150 hours
Production order	4000 orders	4,00,000	10 orders
Material handling	2000 requisitions	40,000	6 requisitions
Parts administration	24,000 parts	9,60,000	40 parts

- All factory overhead costs to products are based on 300% of direct labour cost.

- Compare the total annual costs of the product using both the traditional and ABC system.

Solution

Cost system		Pool rate	Cost driver Consumption	Cost Assignment (Rs)
Traditional cost system		300%	Rs.14,000	42,000
ABC System:				
(i)	Labour	10%	Rs.14,000	1,400
(ii)	Machine	Rs.25 per hour	600 hours	15,000
(iii)	Setup	Rs.10 per hour	150 hours	1,500
(iv)	Production order	Rs.100 per order	10 orders	1,000
(v)	Material handling	Rs.20 per	6 requisitions	120
(vi)	Parts	Rs.40 per part	40 parts	1600
				Rs 20,620

The total cost of the product under ABC is Rs 24,620, whereas under the traditional cost system, it is Rs. 42,000.

Illustration 8.3

XYZ Limited calculates activity cost rates based on cost driver capacity.

Activities	Cost drivers	Capacity	Cost
Quality Inspections	Inspections numbers	12,000 Inspections	Rs 4,80,000
Power	Kilowatt hours	50,000 kwh	Rs 2,50,000

The company has three products X, Y and Z. The following cost drivers were reported for the year ended March 31, 2021:

Product	Kilowatt-hours	Quality Inspection
X	11,000	3,200
Y	19,000	2,400
Z	16,000	2,900

- Calculate the costs allocated.
- Compute the cost of unused capacity for each activity too.

Solution

Costs allocated to each product from each activity:

	X	Y	Z	Total (Rs)
Power [1]	55,000 11,000 kWh X	95,000 19,000 kWh X	80,000 16,000kWh X	2,30,000
Quality [2]	1,28,000 3200X Rs 40	96,000 2400X Rs 40	116,000 2900X Rs 40	3,40,000

Cost of unused capacity for each activity:

Power Quality Inspections

Rs 20,000 (Rs 2,50,000 minus Rs. 2,30,000) Rs1,40,000 (Rs. 4,80,000 minus Rs. 3,40,000)

Total cost of unused capacity Rs 1,60,000

Working Notes:

Rate per unit of cost driver:

[1]Power: (Rs 2,50,000/50,000 kWh) = Rs 5/kwh

[2] Quality Inspection: (Rs 4,80,000/12,000 inspections) = Rs40 per inspection

Illustration 8.4

Data relating to Sunder Ltd is presented as follows:

	Products			
	A	B	C	Total
Production and sales (units)	75,000	52,000	17,000	
Raw material usage in units	15	13	20	
Rawmaterialcosts(Rs)	55	38	19	25,75000
Machine hours	2.5	2	4	3,98,000
Direct labour hours	2.5	4.5	2.5	4,00,000
Direct labour costs(Rs)	15	21	13	
No. of production runs	7	12	42	61
No. of production orders	29	22	52	103
No. of deliveries	19	7	39	65
No. of receipts	65	140	770	975

Overheads:	Rs
Setup	72,000
Engineering	6,96,000
Machines	17,10,000
Receiving	9,20,000
Packing	5,20,000

Compute the product cost based on the direct labour-hour recovery rate of overheads and the product cost using activity based costing.

Solution

Traditional Method: On the basis of Direct Labour Hours

Total overheads = $\frac{39,18,000}{(75000 \times 2.5) + (52000 \times 4.5) + (17000 \times 2.5)\ \text{Hours}}$

39,18,000/ 4,64,000 = 8.44/labour hour

Calculation of Factory cost of the products under Traditional Method of apportioning overheads:

	A	**B**	**C**
	(Rs)	(Rs)	(Rs)
Raw Material	55.000	38.00	19.00
Direct Labour	15.000	21.00	13.00
Overheads(2.5x10.81)	21.100	37.980	21.100
Factory cost(Total)	**91.100**	**96.980**	**53.100**

Under Activity Based Costing System

Computation of Cost Drivers Rates:

Set up cost: Cost driver is No. of Production run

72000/61=1180.32/per run

Machines: Cost driver is Machine hour rate

17, 10,000/3, 98,000=`4.30/Machine hour rate

Receiving cost: Cost driver is No. of Receipts

9, 20,000/975=`943.59

Packing: Cost driver is No. of deliveries

5, 20,000/65 =8000 /delivery

Engineering: Cost driver is No. of Production order

6, 96,000/103=`6757.28/order

Calculation of Factory Cost per Unit of Production

	A		B		C	
	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
Materials		55.00		38.00		19.00
Direct Labour		15.00		21.00		13.00
Overheads						
Setup cost	0.137		0.272		2.916	
Machines	10.75		8.600		17.200	
Receiving cost	0.817		2.540		42.739	
Packing	2.026		1.070		18.352	
Engineering	3.266	16.99	2.858	15.34	20.669	101.876
Factory Cost (Total)		**86.99**		**74.34**		**133.876**

8.6 FEW OTHER TERMS

Activity Based Costing (ABC) and Activity Based Management(ABM)

Similarities and differences between ABC and ABM are presented as follows:

Similarities

- Both ABC and ABM help in managing business activities and improving the performance of an organisation.

Difference

- The ABC relates to the cost measurement and the presentation of the various activities. It relates cost drivers to activities. But, the ABM put emphases on the activities as a way for refining the value obtained as it identifies several activities and processes that customer needs and pay for.
- The ABC may be called a subsection of ABM. It helps refine the costing by outlining the numerous expenses like salaries, rent etc., to activities.

Activity Based Costing (ABC) and Kaizen Costing (KC)

Points	**ABC**	**KC**
Scope of costing	Inside the system	Outside the system
Timing	View is Long term	View is Short term
Main focus	Focus on Fixed costs	Focus on Variable costs
Relationship with costing	direct	Indirect
Usage	cost drivers + performance measures	performance measures

Activity Based Budgeting (ABB)

ABB is dissimilar from traditional budgeting as it makes available a relation amid the aims of an organisation and a specific activity. Traditional budgeting is built on a traditional costing system based on allocation, apportionment, and absorption of overheads.

ABB needs to identify:

- Various activities of the business
- Identify the elements that create costs and their drivers
- Then cost pools are created to collect the costs of the activities.

ABB involves:

- Classification of the activities and allocating them into value adding and non-value adding activities. In due course, the non-value adding activities are removed.

Features of ABB are as follows:

- It relates costs to activities.
- Further, it identifies opportunities for cost improvement.

8.7 ACTIVITY

Suppose that you are appointed the cost accountant in a banking company. The following steps of ABC may be adopted to evaluate the cost of various types of bank credits.

Step One

Classify activities

Many activities may be identified which may involve:

- Analysing client applications
- Customers meetings
- Creating credit reports etc.

Step Two

Allocate costs to the identified activities

Costs allotted to the activity of, suppose, analysing client applications may be as follows:

- Salary of staff analysing and reviewing applications
- Cost of technology involved
- Supplies needed etc.

Step Three

Categorise the cost driver

Illustrative activity cost drivers are:

Activities	Cost Driver
Consultation with clienteles	Meeting time (maybe in hours)
Analysing customer applications	Number of applications analysed
Creating credit reports etc.	Number of credit reports created

Step Four

Estimate overhead proportion for identified activity

- Divide estimated overhead costs of each activity by the cost driver.
- For reviewing client applications, the calculation results in a rate per application reviewed.

Step Five

Apportion overheads to products.

- Then overheads are assigned to loans/products.
- If you review 50 applications,

Total equal to the 50 X rate per application reviewed is assigned to the loans.

8.8 LIMITATIONS OF ACTIVITY BASED COSTING (ABC)

Limitations of ABC are mentioned as under:

- ABC requires ample investment of money and time and needs trained professionals. A small organisation may not have these.
- ABC further requires support from top management; otherwise process cannot be completed efficiently.
- ABC, being a bit complex, requires the compilation of a number of records and complex calculations. As mentioned earlier also, it may be suitable for large organisations, but traditional cost accounting may be more favourable for smaller ones due to its simplicity.
- Cost determination may not be easy as single cost support several activities.

8.9 SUMMARY

Activity-Based Costing (ABC) is a system of costing, where costs are first traced to activities and then to products. This costing system works with an assumption that activities are responsible for the incurrence of costs. As stated earlier, costs are charged to products based on the individual product's use for each activity.

ABC is an approach to costing and does monitoring of activities. It involves tracing resource consumption and then costing of final outputs. In this, resources are assigned to activities and then activities to cost objects based on consumption estimates. It utilises cost drivers to attach activity costs to outputs.

Another description of Activity-based costing is that Activity-based costing (ABC) is a two-stage product costing method that assigns indirect costs and overheads to products and services. Some indirect costs are difficult to assign to a product. As it recognises the relationship between overheads and manufactured products, it assigns indirect costs to products. The assignment is less arbitrarily than traditional costing methods.

Limitations of the traditional costing system gave way for the development of ABC. The traditional system segregates costs into fixed and variable. As the business grows, the costs become more complex. Then the traditional method may not be appropriate for making complex decisions related to production and developing product strategies.

The traditional methods facilitate financial reporting and primarily put prominence on calculating overhead rates for the valuation of stocks. It was seen that the traditional absorption costing approach could not go well with multi-product scenarios, so a change was in line. In fact, multiple-products scenarios or product diversification require accurate product cost ascertainment due to increasing market competition within the country and internationally.

Merits of the ABC are that it removes Cross Subsidization Issues; it deals with complicated processes and Product Customisations. It identifies cost saving opportunities

Demerits include that it is a complex system. It is an issue that product and process should be fully known. It requires and relies on a sophisticated system. It consumes a lot of time and efforts. It Increase in Indirect Cost. Due to the high involvement of technology in ABC, indirect costs rise significantly.

For ABC, it is indispensable to study the organisational activities and manufacturing process to determine the number of stages involved. By this, all the activities involved in producing the product or service can be identified. ABC believes that activities cause cost.

Limitations of ABC are that ABC requires ample investment of money and time and needs trained professionals. A small organisation may not have these.ABC further requires support from top management; otherwise process cannot be completed efficiently.ABC, being a bit complex, requires the compilation of a number of records and complex calculations. As mentioned earlier also, it may be suitable for large organisations, but traditional cost accounting may be more favourable for smaller ones due to its simplicity. Cost determination may not easy as single cost support several activities.

The ABC relates to the cost measurement and the performance of the various activities. It relates cost drivers to activities. But, the ABM focuses on

management of activities to improve the value obtained as it identifies a number of activities and processes that customer needs and pay for.

ABB is different from traditional budgeting as it links the organisation's objectives and particular activity. Traditional budgeting is based on the traditional costing system based on allocation, apportionment, and absorption of overheads.

8.10 KEY TERMS

Cost Object: Item, any product or a job, for which cost measurement is required.

Cost Driver: Cost drivers form the basis of the allocation used to apply costs to services or procedures.

Unit level cost: Drivers generate unit-level costs. They are triggered by making or attainment of a single unit of product or service.

Product-level cost: Cost that is caused by the growth, manufacturing or attainment of different items. It is consists of costs like equipment maintenance, product development etc.

Batch level cost: The costs sourced by a set of things be produced at a point of time.

Facility-level cost: Facility level activities are taken to uphold the overall operations of a business facility. These costs are organisational in nature.

Cost Pool: Cost allocations are done through from the cost pool. A cost pool is an alliance of individual costs for a product or service. It is generally used for the distribution of overhead to units of production as used in activity based costing.

ABM: ABM focuses on management of activities to improve the value obtained as it identifies a number of activities and processes that customer needs and pay for.

ABB: ABB identifies the organisation's activities to identify the factors that create costs and the cost drivers to collect the costs of the activities by creating cost pools.

8.11 SELF-ASSESSMENT QUESTIONS

1. What is Activity-Based Costing (ABC)? What is its need?
2. What are the benefits of activity-based costing?
3. Define cost driver? What are the roles of cost drivers?
4. Distinguish between activity-based costing and traditional costing systems.
5. Define the activities at various level I then. Unit level, batch level, product level and facility level activities.

6. What are the limitations of ABC?
7. What is the process of ABC?
8. Define Activity-Based management (ABM).What is its importance?
9. Distinguish between Activity-Based Costing (ABC) and Activity-Based Management(ABM).
10. Party and Associates have four accounts officers. They make purchase invoices. They are getting a salary of Rs 4,50,000 each annually. They are capable of processing 6000 invoices per year. Besides salary, the company spends Rs 1,20,000 per year for other activities like printing, postage, etc. (assuming that 17,000 invoices are processed). During the year 2020, 13,500 invoices were made.

    Calculate the activity rate for the purchase order activity, total activity, and total cost of resources supplied.

11. DSS Ltd. produces four products, L, M, N and O. Details are given below for the week ended 30th April, 2021.

Products	L	M	N	O
Output in units	180	120	90	130
Cost per unit: (Rs)				
Direct Material	50	50	40	70
Direct Labour	30	23	16	23
Machine hours/ unit	06	04	03	04

    All products are in production runs of 30 units and sold in batches of 15 units. The overheads are: Factory works expenses Rs26,760, Set up costs Rs11,550, StoresRs7,150,Inspection/Quality control Rs5,600, Material handling and dispatch Rs10,140

    The number of requisitions raised on the stores was 30 for each product and number of orders executed was 42, each order being for a batch of 10 of a product.

    Calculate the total cost of each product assuming the absorption of overhead on a machine-hour basis and the total cost of each product using ABC.

12. Samson Company produces A,B,C and D as under:

Product	Quantity	Material cost/unit	Direct labour hours/unit	Machine hours/unit	Direct Labour cost/unit
A	2,000	20	2	0.70	7
B	20,000	20	2	0.70	7
C	2,400	64	8	2.10	26
D	28,000	68	6	2.50	22

Overheads are as under:

Overheads: machine	2,29,700
Overheads: ordering materials	6,780
Setup costs	18,200
Administration overheads: spare parts	34,280
Cost of Material handling	29,274

The following further information has been compiled:

Product	No. of setup	No. of materials orders	No. of times materials handled	No. Of spare parts
A	4	5	8	7
B	21	17	29	16
C	7	6	10	5
D	31	19	41	10

- Select a suitable cost driver for each item
- Calculate the cost per unit by Activity Based Costing and compute the factory cost per unit of A, B, C and D.

8.12 FURTHER READINGS (USE LATEST EDITIONS)

- Kishore, R.M. (2008). Workbook on Cost Accounting and Financial Management.Taxmann's Publication, New Delhi(Chapter 10)
- Arora, M.N. (2011).Cost and Management Accounting. VikasPublications. New Delhi. 9th Edition (Chapter 22)
- Kaplan, R.S and Anderson, S.R. (2004).Time-Driven Activity-Based Costing. https://hbr.org/2004/11/time-driven-activity-based-costing
- Cokins G.(2001).Activity-Based Cost Management: An Executive's Guide. Wiley , New York

BLOCK 3
APPLICATION OF COST ACCOUNTING

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UNIVERSITY

UNIT 9 COST-VOLUME-PROFIT ANALYSIS

Objectives

The aims of this unit are to:

- acquaint you with the nature of Cost-Volume-Profit analysis
- illustrate the factors which affect Cost-Volume-Profit relationships
- Examine the role of break-even analysis by elaborating the Cost-Volume-Profit framework.
- discuss the applications of Cost-Volume-Profit relationships in specific decisions

Structure

9.1 Introduction

9.2 What is Cost-Volume-Profit Analysis?

9.3 Interplay and Impact of Factors on Profit

9.4 Profit Graph

9.5 Cost Segregation

9.6 Marginal Cost and Contribution

9.7 Summary

9.8 Keywords

9.9 Self-assessment Questions/Exercises

9.10 Further Readings

9.1 INTRODUCTION

Managers have to take frequent decisions which involve considerations of selling prices, variable costs, and fixed costs. Many of these decisions are a part of their planning responsibilities and have to be based on predictions about costs and revenues. Almost every question that is posed has a `cost-profit' aspect. You may react to what Horngren (1985, p43) states about cost-volume-profit relationships:

"Cost-volume-profit analysis is a subject inherently appealing to most students of management because it gives a sweeping overview of the planning process and because it provides a concrete example of the importance of understanding cost behaviour-the response of costs to a wide variety of influences."

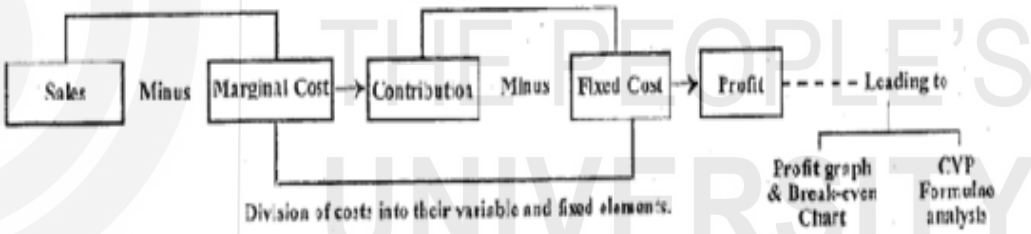
Probably, you belong to the category of management students identified by Horngren. If you have a propensity to know about the planning process and the cost behaviour, you are sure to get at once interested in the study of cost-volume-profit relationship.

9.2 WHAT IS *CVP* ANALYSIS?

The Cost-Volume-Profit (CVP) analysis is an attempt to measure the effect of changes in volume, cost, price and products-mix on profits. You will appreciate that while these variables are interrelated, each one of them, in turn, is affected by a number of internal and external factors. For instance, costs vary due to choice of plant, scale of operations, technology, the efficiency of workforce and management efficiency etc.

Also, the cost of inputs bought externally is affected by market forces. While many wide-ranging factors influence costs and profits, the largest single variable affecting them in the short run is the volume of output. Hence, the CVP relationship acquires a vital significance for the manager facing a wide spectrum of short-run decisions like: what are the most profitable and what are the least profitable products? How does a reduction in selling prices affect profits? How does volume or product mix affect product costs and profits? What will be the break-even point if volume and costs change? How will an increase in wages and/or other operating expenses affect profit? What will be the effect of plant expansion on costs, profit and volume of sales? Answers to all such questions will have to be formulated in a cost-benefit framework, and CVP analysis will offer the technique for doing it.

You may, in fact, perceive CVP analysis as one of the decision models which managers employ to choose among alternative courses of action. The basic (simplified) CVP model may be outlined as follows:



You may now be getting ready to comprehend the CVP concept. You will observe that profits are a function of the interplay of costs, prices, and each one of them is relevant to profit planning. The variance between actual and budgeted profit arises due to one or more of the following factors: selling price, volume of sales, variable costs, and fixed costs.

You will also appreciate that these four factors, which cause deviations in planned profits, differ from each other in terms of controllability by management. It is evident that selling prices largely depend upon external forces. Costs, of course, are more controllable. But they pose a problem of measurement. This is more so when a firm manufactures two or more products. Nevertheless, knowledge of fixed and variable costs is essential if costs are to be controlled. Consider a tenuous cost - volume-profit transit.

"Sales price change □ volume change □ unit cost change □ profit structure change."

You may try an answer to the question: How will costs change in the future situation? Would you succeed? Probably, not quite so at this stage! But the

CVP decision model will, of course, have an answer within its assumptive framework.

9.3 INTERPLAY AND IMPACT OF FACTORS ON PROFIT

We have said above that costs and volume do influence profit. You will observe more objectively the extent and nature of this impact with the help of an illustration. It is proposed to evaluate the effect of

- Price changes on net profit,
- volume changes on net profit,
- price and volume changes on net profit,
- an increase or decrease in variable costs on net profit,
- an increase or decrease in fixed costs on net profit,
- all four factors viz., price, volume, variable costs, and fixed costs on net profit.

Illustration 9.1

The following assumptions are made in the illustration: normal sales volume is 2,00,000 units at a selling price of Rs. 2 per unit; capital investment is Rs. 2,00,000, and management expects to earn a fair return on it: fixed costs are Rs. 1,60,000; variable expenses are Re. 1 per unit.

Solutions for the three situations are tabulated separately. The control column of each table shows normal volume, and a decrease in volume/price by 10% and 20% is shown on the left, while an increase in volume/price by the same percentages is shown on the right of the 'central column'. Calculations show net profit or loss for each set of conditions and the net profit per unit, the percentage return of investment, and the break-even point.

Influence of price changes on Net Profit.

Table 9.1

Particulars	**Decrease in price**		**Normal**	**Increase in Price**	
	20%	**10%**	**Volume**	**10%**	**20%**
Units	2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Sale (Rs.)	3,20,000	3,60,000	4,00,000	4,40,000	4,80,000
Variable cost (Rs)	2,00,000	2,00,000	2,00,000	2,00,000	2,00,000
Marginal Income (Rs.)	1,20,000	1,60,000	2,00,000	2,40,000	2,80,000
Fixed costs (Rs.) '	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
Net Profit (Net Loss) Rs	(40,000)	0	40,000	80,000	1,20,000
Net Profit (Net loss)	(.20)	-	.20	.40	.60
Per unit (Rs.)	- 200 %	-100%		+ 100%	+ 200 %
% change in profit					
Return on investment	-20%	0%	20%	40%	60%
Break-even point rupee sales	4,26,667	3,60,000	3,20,000	2,93,333	2,74,286

You may note the following from the above situation: (a) a 10% decrease in price reduces profit to zero, while a 10% increase in price increases profits by

100%.

(b) with lower selling prices and a constant volume, the break-even point increases.

This happens because a reduction in sales revenue due to decrease in sales price reduces the marginal income (contribution). A much greater number of units have to be sold in order to recover the fixed costs.

Influence of volume changes on Net Profit.

Table 9.2

Particulars	Decrease in volume		Normal	Increase in Volume	
	20%	10%	Volume	10%	20%
Units	1,60,000	1,80,000	2,00,000	2,20,000	2,40,000
Sales(Rs.)	3,20,000	3,60,000	4,00,000	4,40,000	4,80,000
Variable cost (Rs.)	1,60,000	1,80,000	2,00,000	2,20,000	2,40,000
Marginal income (Rs.)	1,60,000	1,80,000	2,00,000	2,20,000	2,40,000
Fixed costs (Rs)	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
Net Profit (Rs.)	-	20,000	40,000	60,000	80,000
Net Profit per unit (Rs.)	-	.11	.20	.273	.33
% change in profit	-100%	-50%	-	+50%	+100%
Return on Investment	0%	10%	-	30%	40%
Break-even point in sales(Rs.)	3,20,000	3,20,000	3,20,000	3,20,000	3,20,000

You may note here the following: (a) a 20% decrease in volume reduces sales to the break-even point, which remains constant because variable costs change in proportion to sales. (b) a 20% increase in volume improves profit by 100%. A similar increase in price (viz., by 20%) increases profit by 200% (see above).

Influence of changes in prices and volume on Net Profit.

Table 9.3

Particulars	Increase in price			Decrease in Price	
	20% and Decrease in Volume 20%	10% and Decrease in Volume 10%	Normal Volume	10% and Increase in Volume 10%	20% and Increase in Volume 20%
Units	1,60,000	1,80,000	2,00,000	2,20,000	2,40,000
Sales (Rs)	3,84,000	3,96,000	4,00,000	3,96,000	3,84,000
Variable costs (Rs.)	1,60,000	1,80,000	2,00,000	2,20,000	2,40,000
Marginal income (Rs)	2,24,000	2,16,000	2,00,000	1,76,000	1,44,000
Fixed costs (Rs.)	1,60,000	1,60,000	1,60,000	1,60,000	1,60,000
Net profit/(Net loss) Rs	64,000	56,000	40,000	16,000	(16,000)
Net profit per unit Rs.	.40	.31	.20	.0727	(.066)
% change in profit	+60%	+40%	-	-60%	-140%
Return on investment	32%	28%	20%	8%	8 % loss
Break-even point (Rs.)	2,74,286	2,93,333	3,20,000	3,60,000	4,26,667

Please note in this situation that (a) the price increase, as assumed, would result in higher profits, even if it is accompanied by a decrease in volume of the same order. The reverse, however, is true of a price decrease accompanied by a volume increase.

(b) the break-even point would be at its lowest when prices are increased and volume is decreased because higher rupee volume with lower unit volume reduces the variable cost ratio.

Activity 9.1

You may continue your computations for the remaining three situations referred to at the beginning of this section and list your conclusions. The break-even point may be calculated with the help of the following formula:

$$\text{Break-even sales volume (Rs)} = \frac{\text{Total Fixed Cost}}{\text{Total Variable Cost}} \times \frac{1}{\text{Total Sales Volume}}$$

You will observe from the conclusions derived from the above exercises that such operations would be found quite helpful in all such cases where irrational tendencies for price-cutting or for achieving high sales volume exist.

Please note the following in our discussion so far to develop understanding for subsequent sections

1. CVP analysis explores the fundamental relationships between costs - volume- profit variables. You will observe that changes in volume influence cost and profit and, while this process gets underway, a stage is reached when the cost is equated with revenue at a certain level of output

or at a certain volume of sales. This is recognised as the `break-even point.' You must understand that the 'break-even point' is a point that is incidental to CVP analysis. Therefore, attempts to define CVP analysis as break-even analysis should be considered only restrictive. It must be admitted that break-even analysis does become an integral part of CVP analysis, but the two are not co-terminus.

2. You will grasp the CVP fundamentals along the following routes

   a) First, the profit-volume relationship will be analysed, and the basic framework *of* 'Profit Graph' will be presented.

   b) The assumptions underlying the construction and analysis of a 'Profit Graph' will be postulated, and the concept of 'Planned range of activity' will be discussed.

   c) A crucial step in understanding CVP analysis would be the segregation of costs into fixed and variable components. Procedures for doing this will be briefly examined.

   d) The concepts of 'marginal cost' and `contribution' will be introduced, leading to 'break-even analysis' and `margin of safety'.

   e) After a look at the conventional break-even chart, such charts for various purposes will be demonstrated.

   f) Finally, CVP analysis will be presented in mathematical formulations. With this, you should be able to understand practical applications of CVP analysis for business decisions. You will be expected to do assignments on these aspects.

9.4 PROFIT GRAPH

A business Firm usually pursues a profit objective. In a way, it plans for maximising its profit. Both the operations plan and the firm's overall plan are couched in terms *of* this 'profit objective', and their primary variables are cost, volume, and profit forecast for the planning period (or horizon). The critical variable is usually the 'volume *of* sales forecast' around which costs and profit estimates are built.

A question often faced in the planning stage itself is: what will happen to profit if the forecast level of sales changes? Such a question will not always be irrelevant because conditions change so rapidly. A manager seeking an appropriate answer to this question would want to get some guidance. The profit graph, which shows the relationship between profit and volume (P/V relationship); helps provide the questioning manager with a possible answer.

You will recall from the calculations presented in the previous section about gauging the impact of changes in price, volume, etc., on profit that a term called 'marginal income' was calculated (please see item number 4 in each of the Tables 9.1, 9.2 and 9.3). Please note that 'marginal income' is the difference between sales and variable expenses and represents the total contribution to fixed expenses and profit. This term may be understood in another way as well. If variable expenses are expressed as a per cent of sales, we get the variable cost ratio. Then, total contribution or marginal income is

equal to the "1-variable cost ratio". In all the three situations given in Section 9.3, the variable cost ratio for the normal volume of sales is 50% or .50. Total contribution or marginal income would, therefore, be 1-.50 = .50 or 50%. Another term for `marginal income' is the P/V ratio or the profit-volume ratio. **You must note that the P/V ratio is not obtained by dividing sales volume by profit but by deducting the variable cost ratio from unity (1)**

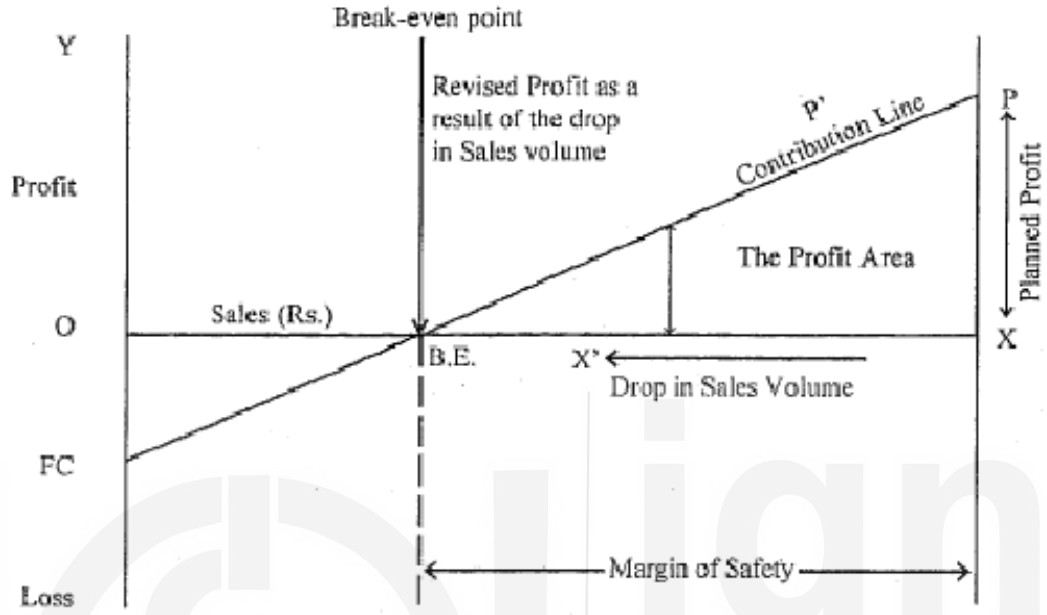


Figure 9.1: Profit Graph

With the primary purpose of the profit graph and some of its vital variables having been clarified, you may now move on to a hypothetical profit graph to comprehend the relationships involved. Figure 9.1 provides this graph. We may explain the construction of the graph to you and will then specify the assumptions behind this graph in the following section. OX on the X-axis provides sales volume, and OY on the Y-axis plots profit above 0 and loss below O.OFC measures the fixed cost. The line FCP joins two points viz. FC the fixed cost and P the profit expected to be released as the profit-volume plan. The area encompassed by XBE is the margin of safety, while the point BE is the break-even point. BEPX is the profit area, and the line FCBEP is the total contribution or the PV line. If the sales volume does not materialise at point X, as per the plan, and drops to X,' the profit zone will shrink to a new profit area BEX'. Further declines in sales volume will be absorbed by the margin of safety, after which losses will begin showing up. All these points will come up for further clarification in subsequent sections.

Activity 9.2

		Yes	No
1)	The cost -Volume-Profit analysis is another name given to break-even analysis	[ ]	[]
2)	CVP relationships aid in planning	[]	[]
3)	CVP analysis is on a profit-volume graph; hence cost is an irrelevant variable.	[]	[]

4) Profit responses to price increases are greater than to price reductions.
[] []

5) The P/V ratio is obtained by dividing sales volume by profit.[] []

6) Lower selling prices will push up the break-even point if: [ ] [ ]
   a) Volume remains constant
   b) profit targets are raised
   c) plant capacity is expanded
   d) new products are added
   e) none of the above.

7) The margin of safety is the difference between [ ] [ ]
   a) planned sales and actual sales
   b) planned sales and break-even sales
   c) planned profit and realised profit
   d) planned profit and fixed profit
   e) none of the above.

8) If the sales volume of a firm is Rs. 10 lakhs, variable costs are Rs. 6 lakhs, profit is Rs. 2 lakhs, the P/V ratio will be [] []
   a) 20 percent
   b) 33 percent
   c) 40 percent
   d) 60 percent
   e) none of these

9) The proposition that the break-even point would be at its lowest when prices are increased and volume decreased is [ ] [ ]
   a) generally true
   b) seldom true
   c) true in the case of a multi-product firm only
   d) never true
   e) none of these

10) To be able to control, costs must be segregated into fixed and variable.
[] []

Assumptions in Profit Graph

You have seen the Profit Graph and have got your first exposure to it. Maybe, few doubts have started bothering you. Your queries may take the following form: "How will the total contribution line emerge as a straight line if variable costs per Unit do not remain constant, or if the efficiency of operations improves within the planned range of activities, and so on?" You

are probably right in thinking so.

We have already stated that the CVP is a decision model. As with most such models, some simplifying assumptions undoubtedly make the underlying analysis a bit unreal but easier to comprehend.

You may consider the following assumptions in particular:

a) Variable costs are a constant cost per unit of volume. This will mean that the variable cost rate is constant even if the total variable costs will increase in direct proportion to an increase in output volume or sales quantum.

b) Total fixed costs remain constant throughout this planned range of activity.

c) The efficiency of operations remains unchanged throughout the planned range of activity.

d) All costs, particularly the semi-variable and mixed costs, can be separated into fixed and variable elements.

e) Selling prices per unit of sale remain constant

f) Sales-mix for a multi-product firm remains constant.

g) Volume is the only relevant factor affecting cost.

h) Factor prices, e.g. material prices, wage rates etc., and remain unchanged.

i) Costs and revenue are being compared on a single activity base, e.g., sales value of output or units produced. Further, stock levels will not vary significantly in the period covered by the plan.

j) Variations in opening and closing inventories are insignificant. The Important implications are: there is a relevant range of activity over which cost behaviour is linear; all prices remain unchanged, and costs can be classified into fixed and variable costs classified into fixed and variable costs.

Activity9.3

You have studied cost behaviour patterns in the unit on 'Understanding and Classify- in Costs'. This behaviour is relevant to CVP analysis as you must have noted. If it is taken that these assumptions about cost behaviour are nowhere near the real-life situation, the whole exercise is reduced to a hypothetical pictorial presentation. With this backdrop, examine the truth of the following statement:

The idea of a relevant range to justify linear rather than non-linear cost patterns may not be correct, but "a linear expression of the total cost may often be a reasonable reflection of reality". (Middleton, 1980)

(Hint: It is plain that the accountant's assumptions are unrealistic. But he does not seem to be very much in error; firstly, because obtaining more accurate cost functions is both difficult and expensive. Often, the cost of obtaining more accurate data would exceed the value of any additional

information that may be gained from such accurate data: secondly, because most decisions those managers take are within the relevant range of volume where the linearity assumption may not appear unreasonable).

9.5 COST SEGREGATION

Some broad guidelines may be suggested to divide costs into two dominant groups' viz., fixed and variable. They are listed below:

a) Costs that remain invariant to the volume of activity would be considered fixed. No costs are fixed forever. The concept is relative to the planning horizon (usually a short-run one) and the relevant range of activity.

b) Costs that vary in direct proportion to the volume of activity will be classified as variable costs.

c) Costs that otherwise belong to a mixed category, i.e., which neither belong neatly to category (a) nor to category (b) above, would, in fact, be apportioned to one of the two categories viz., fixed or variable.

If a mixed cost varies in some (not direct) proportion to output or volume of activity, it will be classed as a variable cost. On the other hand, if a mixed cost is predominantly fixed, it would be classed as a fixed cost.

Activity 9.4

Give some examples of each of the cost categories stated in this Section.

……
……
……
……
……

Methods to segregate costs

In the previous unit, various methods of segregating semi-variable costs into fixed and variable elements were discussed. Here, we repeat two statistical techniques which may be employed to separate fixed costs and variables costs.

- Least-squares
- Scatter Diagram

We illustrate these methods.

Illustration 9.2

Least Squares: Power charges are a semi-variable or a mixed cost of Ravalli Ltd. It is proposed to segregate them into fixed and variable components using the method of least squares.

Monthly data regarding direct labour hours and electricity charges are given below:

Month	Direct Labour hours (000)	Electricity Charges Rs.
January	34	640
February	30	620
March	34	620
April	39	590
May	42	500
June	32	530
July	26	500
August	26	500
September	31	530
October	35	550
November	-43	530
December	48	680
Total:	420	6,840

The following calculations are made for the variable rate and the fixed element of electricity charges:

Variable rate: $\frac{\sum xy}{\sum x^2}$

Fixed element : Y = a+bx

Where Y is the dependent variable, x is the independent variable (i.e., direct labour hours in the example), a is the constant i.e., the fixed cost element to be solved, and b is the slope of the regression line i.e., the variable cost per unit.

Calculation of Fixed and Variable Elements

Month	Direct Labour Hours X (`000)	Deviation from mean x=35	Electricity Expenses Y	Deviation From mean y=570	X^2	xy
January	34	-1	640	+70	1	-70
February	30	-5	620	+50	25	-250
March	34	-1	620	+50	1	-50
April	39	+4	590	+20	16	+80
May	42	+7	500	-70	49	-490
June	32	-3	530	-40	9	+120
July	26	-9	500	-70	81	+630
August	26	-9	500	-70	81	+630
September	31	-4	530	-40	16	+160
October	35	0	550	-20	0	0
November	43	+8	580	+10	64	+80
December	48	+13	680	+110	169	+1430
					$\sum x^2=512$	$\sum xy=2,270$

Variable electricity rate b $= \frac{\sum xy}{\sum x^2}$

$= \frac{2270}{512}$ = 4.4 paise per thousand labour hours

= 44 Paise per 100 labour hours

or .0044 per labour hour.

Fixed element of electricity charges 'a' can be found out by substituting values in the equation, a + bx,where

Y=570

X = 35,000 labour hours

we get : Rs. 570 = a + .0044 (35000)

Rs. 570 = a + Rs. 154

Rs. 570 – Rs: 154 = a

Rs. 416 = a (the fixed element)

Scatter Diagram: The regression equation calculated above may be fitted by freehand on a diagram where direct labour hours are plotted on the X-axis and electricity charges are plotted on the Y-axis. There will be 12 points scattered within the quadrant space of the graph. A line may be made to pass through these points so that there is roughly an equal member of points above and below the line. The vertical intercept of the regression line thus drawn (i.e., the point at which the line intersects the Y-axis) will measure the fixed element of the electricity charges.

The slope of the regression line may be found to ascertain the variable rate per 100 labour hours. Alternatively, the fixed expense as given by the vertical intercept may be multiplied by 12 to get the annual fixed expenses on electricity. This may be deducted from the total electricity charges of Rs.6,840. The balance may be divided by the total annual labour hours viz. 4,20,000 hr. and that quotient would be the approximate rate per labour hour.

Activity 9.5

You may draw the scatter diagram using the data given in the example and follow the procedure outlined above. Then, determine the fixed and variable elements of electricity charges. Verify your results with the results computed above.

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9.6 MARGINAL COST AND CONTRIBUTION

Once the fixed and variable costs are segregated it becomes possible to calculate the total contribution as well as total contribution per unit. You will recall that total contribution equals the difference between sales and variable (marginal) costs. Total contribution per unit is expressed in per-unit terms by dividing both sales and variable costs by the total number of units and deducting per unit variable cost from per unit selling price. The total contribution may be directly divided by total number of units to obtain similar results.

You should remember that total contribution is the contribution of sales revenue to fixed cost recovery and profit after meeting the total variable costs.

you may also recapitulate that total contribution may also be expressed as a percent- age, which is recognised as the P/V ratio. This isthe‘1-variable cost’ ratio. And variable cost ratio is sales divided by total variable cost.

You must now understand the basic thrust of the Profit Graph presented in an earlier section. So far, you must be wondering how the contribution line was plotted on that graph. Now, probably, it is easier to comprehend. **The contribution line is, in fact, obtained by plotting contribution per unit figures against different levels of sales values.**

You may switch back to the Profit Graph and have a closer look at the contribution line. This line originates from the loss zone and raises up to the break-even point BE on the sales volume line. You may interpret this part of the contribution line up to BE i.e., the break-even point as indicative of the recovery of fixed costs only. It is only after this point that the contribution line combines itself with the X-axis and the right Y-axis to form a triangle PXBE which has been marked as the profit area.

Break-even Point

We had earlier stated that the break-even point is not all that is contained in the CVP analysis. It is only incidental to such an analysis. You have already seen that the break-even point is just one point on the whole journey of the contribution line as it transits from the fixed cost point F to the profit point P via the sales revenue line viz, the X-axis. The horizontal intercept of the contribution line at BE is the break-even point. At this point, total costs and total revenues are held in equilibrium and a no-profit no loss position emerges.

Margin of Safety

While revealing the estimated profit or loss at different levels of activity, the Profit Graph also suggests the magnitude by which the planned activity level can fall before a loss is experienced. This is known as the Margin of Safety and is obtained by deducting the break-even sales from the planned sales.

A graphical glimpse into cost-volume-profit structures: Two cases of companies A and B are presented. You may examine the sales and total cost

lines and offer your comments. You should note the differences between these graphs and the profit graph presented earlier.

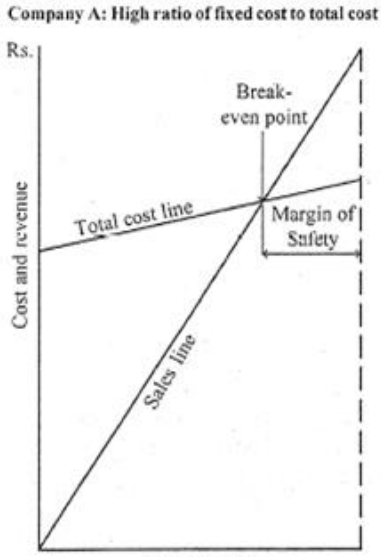


Figure 9.2

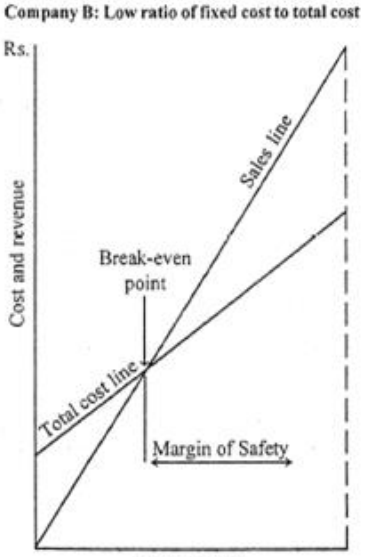


Figure 9.3

A significant difference between companies A and B is in terms of the location and slope of their respective total cost line. Company A has a high ratio of fixed cost to total cost because the vertical intercept of its total cost line is very high. In contrast, company B's vertical intercept is quite low and it has a low ratio of fixed costs to total costs accordingly. The following results follow:

a) Once the break-even point is reached for company A, large profits are made quickly as volume rises. The profit growth for the company is slower after this break-even point.

b) Company B, however, has larger Margin of Safety than company A and can, therefore, sustain difficult business spells without immediately cutting down on its level of activity. Company A cannot hazard a similar course and may have to shut down much earlier.

Break-even Chart

You will appreciate the break-even analysis is a transitional stage of CVP analysis. Many authors discuss the interchangeability of these two because the derivation of break-even analysis from CVP analysis is very subtle.

The break-even chart also emerges from the Profit Graph, but the total cost replaces the contribution line. The new relationships which must receive attention in the wake of this major change, viz., replacement of the contribution line by the total cost line, are presented in the two graphs below:

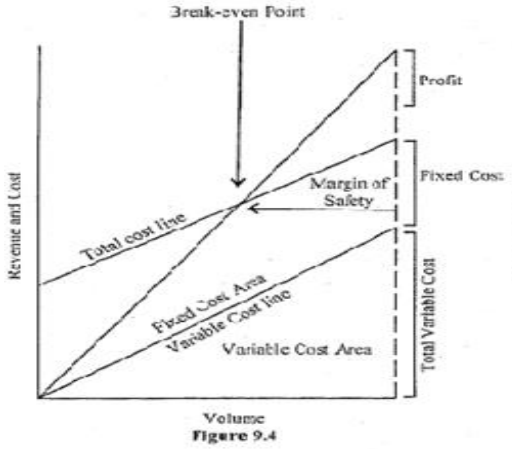


Figure 9.4

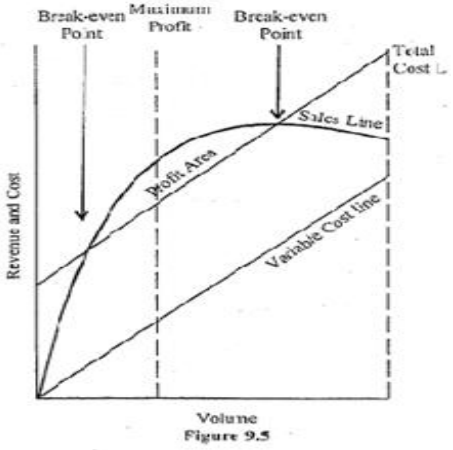


Figure 9.5

Figure 9.4 provides an idea of a conventional break-even chart. Figure 9.5, however, depicts a situation where sales revenue may have declined as a result of lowering selling prices to liquidate a higher volume of goods, and the company moves into a situation where loss is incurred. The point of maximum profit is also shown on the graph.

Purpose of Break-even Charts

The figures presented in this sub-section provide a glimpse of the uses to which break-even analysis can be put. The objective is to offer a visual comprehension of a few illustrative situations. This will hopefully make the mathematical section more comprehensible.

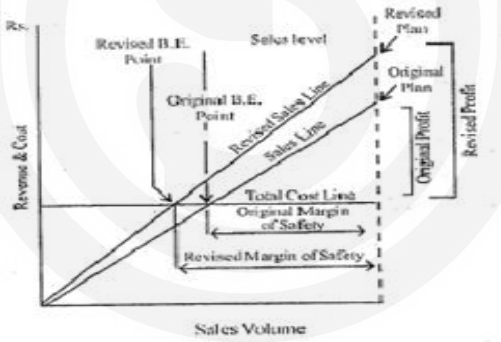


Fig. 9.6 : Effect of Sales price changes on Profits.

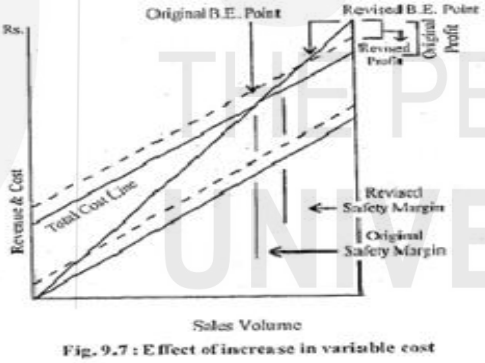


Fig. 9.7 : Effect of increase in variable cost

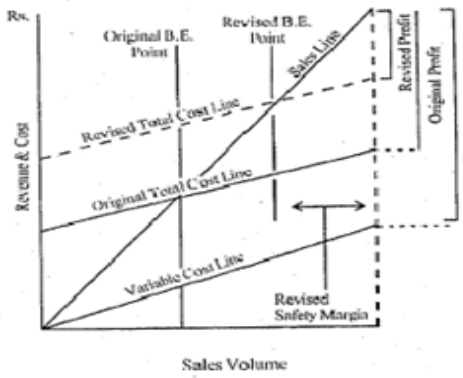


Fig. 9.8 : Effect of increase in fixed cost

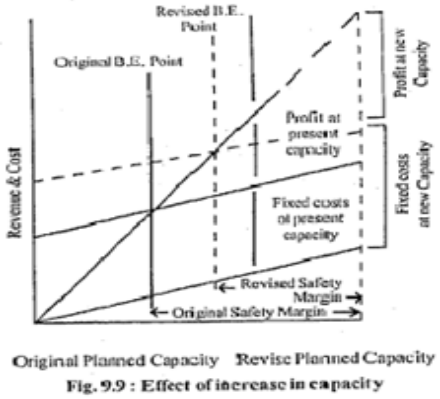


Fig. 9.9 : Effect of increase in capacity

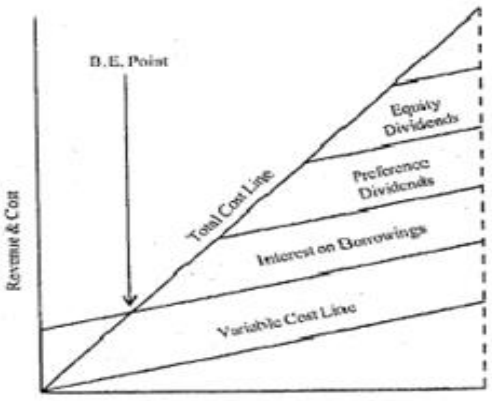


Fig. 9.10 : Effect of profit appropriation

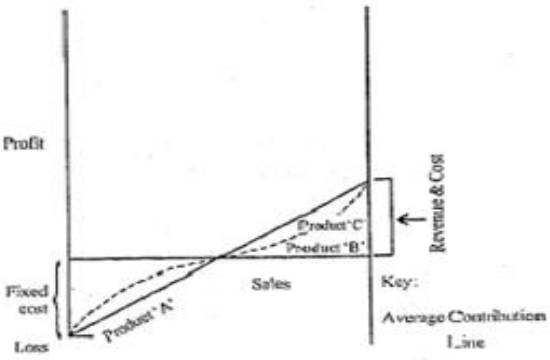


Fig. 9.11 : Contribution effect of three products to overall profitability

Activity 9.6

Study Figures 9.6 through 9.11 and note your comments on important conclusions that you would arrive at from each Figure.

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CVP and Break-even Analysis: A resume

This concluding section of the unit presents the CVP relationship and break-even application in the form of mathematical formulations.

The following abbreviations are used:

FC = Fixed Cost

C = Contribution

P = Profit

S = Sales

P/V ratio = profit-volume ratio

BE point = Break-even point

MS = Margin of Safety

VC = Total Variable Cost

1) FC = C- P or alternatively (P/V ratio x S)-P

2) C = FC + P or alternatively P/V ratio xS

3 BE point:

a) In terms of sales value (Rs.)

$$BE = \frac{FC}{C} \times S \text{ or alternatively } \frac{FC}{P/V \text{ ratio}} \text{ or } \frac{FC}{1 - \frac{VC}{S}}$$

b) In terms of sales volume (Units)

$$BE = \frac{FC}{C \text{ per unit of product}}$$

4 MS = S – BE point

5 P = C – FC or alternatively P/V ratio × MS

6 $MS \text{ ratio} = \frac{P}{P/V}$ or alternatively

$$\frac{\text{Actual sales} - \text{BE sales}}{\text{Actual sales}}$$

Illustration 9.3

The following data relates to a firm for an accounting period:

		Rs.
	Sales	20,000
	Variable cost	12,000
Contribution	8,000	
Fixed cost	6,000	
Profit	2,000	

P/V ratio = $\frac{8,000}{20,000} = 40\%$

Units manufactured and sold 10,000 The following changes have been planned:

a) Fixed cost increases to Rs.7,000

b) Selling price per unit reduced to Rs.1.50

c) Rs. 2,000 minimum additional profit is required for the additional fixed cost of Rs. 1,000.

d) Extra profit is also required, and this is put at Rs.1,000.

The new P/V ratio is $\frac{3000}{15000} = 20\%$

Applications of CVP Formulae:

A. Determination of the level of sales (Rs.)

a) To achieve a given profit when fixed cost and P/V ratio are known:

$$\frac{\text{Given profit} + \text{fixed cost}}{\text{P/V ratio \%}}$$

Example: $\frac{2,000 + 6,000}{40\%}$ = Rs. 20,000

b) To maintain the current profit after an increase in fixed cost when the new fixed cost and original P/V ratio are known:

$$\frac{\text{Current profit + New Fixed cost}}{\text{P/V ratio \%}}$$

Example: Using change in information as given in (a):

$$\frac{\text{Rs. 2,000 + Rs. 7,000}}{40\%} = \text{Rs. 22,500}$$

Proof :		
	Contribution = 40% of Rs. 22,500	Rs. 9,000
	Less fixed cost	Rs, 7,000
	Profit	Rs. 2,000

c) To earn a minimum return on a new investment in plant and machinery as well as the current profit when new fixed cost and original P/V ratio are known :

$$\frac{\text{Current profit + Minimum return on additional profit + New Fixed cost}}{\text{P/V ratio \%}}$$

Example : Using change in information as given in (c) :

$$\frac{\text{Rs. 2,000 + 2,000 + 7,000}}{40\%} = \text{Rs. 27,500}$$

Proof :		
	Contribution = 40% of Rs. 27,500	Rs. 11,000
	Less fixed cost	Rs, 7,000
	Profit	Rs. 4,000

d) To achieve an increased profit when current sales level and P/V ratio are know and when no change is envisaged in fixed cost.

$$\text{Current sales level} + \frac{\text{Increased profit required}}{\text{P/V ratio \%}}$$

Example: Using change in information in (d):

$$\text{Rs. 20,000} + \frac{1,000}{40\%} = \text{Rs.22,500}$$

Proof:		
	Contribution = 40% of Rs. 22,500	Rs. 9,000
	Less fixed cost	Rs. 6,000
	Profit	Rs. 3,000

B Determination of Sales Volume in units:

e) To maintain the current profit when a reduction in selling price is contemplated, given current contribution, new P/V ratio, new selling price per unit:

$$\frac{\text{Total Contribution before price reduction}}{\text{New P/V ratio as a result of the price reduction}} \div \text{New selling price per unit}$$

Example: Using change in information in (b):

$$\text{Rs. } \frac{8,000 \div \text{Rs. } 1.50}{20\%} = 26{,}667 \text{ units}$$

Proof:		
	Sales 26,667 × 1.50	Rs. 40,000
	Variable Cost 26,667 × 1.20	32,000
	Contribution	8,000
	Fixed Cost	6,000
	Profit	2,000

f) To maintain the current profit after an increase in fixed costs, given the new fixed cost, contribution per unit, and constant P/C ratio.

$$\frac{\text{New fixed cost + Profit before increase in fixed cost}}{\text{Contribution per unit}}$$

Example: Using change in information in (a):

$$\frac{\text{Rs.7,000 + 2,000}}{.80} = 11{,}250 \text{ units}$$

Proof:		
	Contribution = 11,250 × . 80	Rs. 9,000
	Less fixed cost	7,000
	Profit	2,000

9.7 SUMMARY

Cost volume profit analysis provides a framework within which the impact of volume changes may be examined on profit in the short run. Cost behaviour is added as a dimension, and corresponding changes in profit, break-even point, and margin of safety are observed.

Break-even analysis is an integral part of CVP analysis, even though the former is just incidental to the latter.

CVP analysis is used as a tool of planning. A profit plan is essential to be based on it. Several managerial decisions are often premised on this vital tool of analysis. Examples of such decisions are distribution channels, outside contracting, sales promotion expenditures, and pricing strategies.

The conventional break-even chart is based on many assumptions, the most relevant being the 'planned range of activity', The 'short-run', and 'linearity of cost functions'.

Many valuable conclusions can be drawn from CVP and break-even analysis. Notice, for example, the following:

a) A firm with a high proportion of the fixed cost to total cost is accompanied by a high break-even point and carries a potential for substantial profits once the break-even point is reached.

b) A company with a low proportion of fixed cost to total cost, on the other hand, commands greater flexibility in terms of profitable operation.

c) An increase in sales prices lowers the break-even point and increases the margin of safety.

d) An increase in costs pushes up the break-even point and lowers the margin of profit.

9.8 KEYWORDS

CVP analysis is a technique of analysis to study the effects of costs and volume variations on profit.

Break-even point is a level of sales (volume or value) where total costs and total revenues are equal.

Margin of safety is the excess of sales, budgeted or actual, over the break-even sales volume. It shows the amount by which sales may decrease before losses occur.

Margin of safety ratio is a relative expression of the margin of safety and is obtained by dividing the sales with actual (or budgeted) sales.

Unit contribution line is the relationship between contribution (i.e., sales minus variable costs) per unit and different sales levels shown on a profit graph.

Profit Graph is a depiction of the unit contribution on a graph with sales on

the horizontal scale and profit/fixed cost/ loss on the vertical scale.

PV ratio is the percentage of contribution to sales.

Variable cost ratio is the percentage of variable costs to sales value.

Mixedcostsarecoststhatcarrybothfixedandvariableelements.Thesearealso known as semi-variable costs.

9.9 SELF-ASSESSMENT QUESTIONS/ EXERCISES

1) What is CVP analysis? Does it differ from break-even analysis?
2) How do you compute the break-even point?
3) Though the break-even chart and profit graph intend to show the same information, they seem to differ from each other'. Examine and explain the statement
4) 'This break-even approach is great stuff. All you need to do is worry about variable costs. The fixed costs will take care of themselves. 'Discuss.
5) What is meant by margin of safety? How is it determined?
6) You are asked to employ break-even analysis for suggesting likely profits and losses at different levels of sales activity. Do you think your report would be invalidated by certain factors? Give your answer with examples.
7) Please state whether the following statements are true or false:(T/F)
   a) Mixed costs are used independently of fixed and variable costs in cost- volume profit analysis
   b) The variable cost ratio is 1-P/V ratio.
   c) The higher the break-even point, the lower the fixed costs.
   d) An increase in total costs unaccompanied by a change in sales reduces the margin of safety.
   e) Semi-variable costs cannot be separated into fixed and variable elements.
   f) Break-even analysis is invalid for a multi-product firm.
8) An increase in capacity reduces the margin of safety if
   a) total costs remain unchanged.
   b) fixed costs at new capacity are increased.
   c) fixed costs increase and sales grow.
   d) variable costs per unit increase.
   e) none of the above.
9) If sales and fixed costs remain unchanged, the contribution will remain unchanged only when.

a) revised profit increases

b) margin of safety is increased

c) fixed costs increase

d) total variable costs remain constant

e) none of the above

10) An increase in variable costs

a) reduces the contribution

b) increases the P/V ratio

c) increases the margin of safety

d) increases the new profit

e) none of above

11) An increase in sales price

a) does not affect the break-even point

b) lowers the break-even point

c) increases the break-even point

d) lowers the new profit

e) none of the above

12) Budget sales of a firm are Rs. 1 crore, fixed expenses are Rs. 10 lakhs and variableexpensesareRs.50lakhs.Theexpectedprofitintheeventof10% increase in total contribution margin and constant sales would be

a) Rs.40,00,000

b) Rs,60,00,000

c) Rs.45,00,000

d) Rs.55,00,000

e) None of the above

13) If the ratio of variable costs to sales of a firm is 30% and its fixed expenses are Rs. 63,000, the break-even point would be

a) Rs.90,000

b) Rs.18,900

c) Rs.71,100

d) Rs.81,900

e) None of the above

14) The total fixed costs of the firm are Rs. 9,000 total variable costs are Rs, 15,000 total sales are Rs. 30,000 and units sold are 10,000. The margin of safety is

a) 5,000units

b) 8,000units

c) 4,000units

d) 6,500units

e) None of the above.

15. If the variable cost per unit is Rs.10, fixed costs are Rs. 1,00,000, and the selling price per unit is Rs.20 and if the break-even point is lowered to 8000 units, the selling price would be

a) Rs.25.00

b) Rs.30.00

c) Rs.27.50

d) Rs.22.50

e) None of the above

16. Where total costs are Rs.60,000, fixed costs are Rs. Rs.30,000 and sales are Rs.1,00,000 the break-even point in Rs. would be

a) Rs.50,450

b) Rs.42,857

c) Rs.45,332

d) Rs.60,000

e) None of the above.

17. A company manufactures and sells four types of products under brand names A, B, C and D. The sales mix in terms of value is 33 3 %, 413 %, 16 3 **%o** and 8 3 % for A, B, C and D respectively. The total budgeted sales are Rs 60,000 per month.

Operating costs are:

Product A 60% of selling price Product B 68% selling price

Product C 80% of selling price

Product D 40% of selling price

Fixed costs amount to Rs.14,700 per month

You are required to

a) calculate the break-even point for the products on an overall basis, and

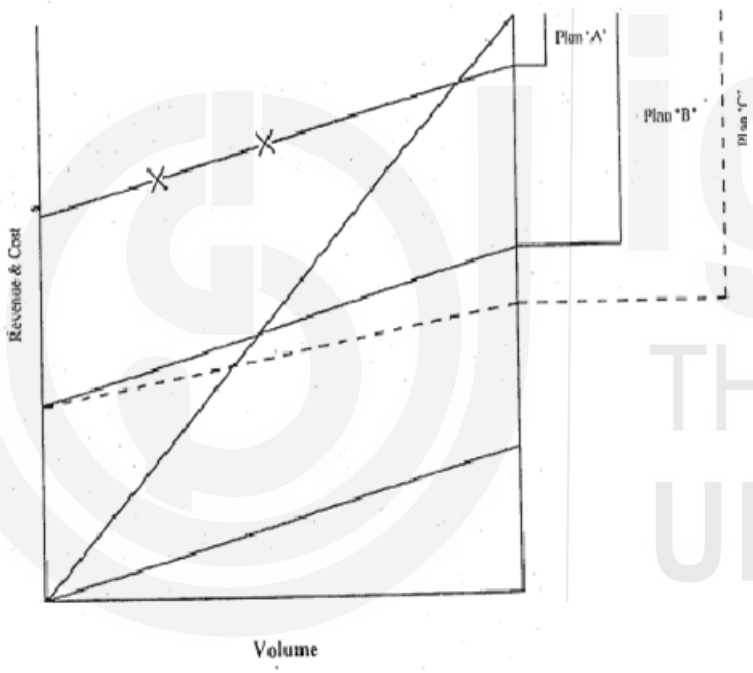
b) calculate the new break-even point if the sales mix undergoes the following change:

Products	**Sales mix**
A	25%
B	40%
C	30%
D	5%

c) Describe and explain the main factor contributing to a shift in the break-even point in the new position.

18. Janata Ltd. reported poor profits for the previous year. This point came up to discussion at a management meeting convened to discuss profitability in the following year. Bhasker Mitter, the Sales Manager, has attended the said meeting. He stressed his belief that greater volume in terms of sales was the answer to the problem of the company. An increase in volume in the previous year had not materialised. In fact, the sales value was the same as the year before with no major volume change, and yet the profit had dropped. Bhasker Mitter mentioned that product 423 had not sold in the current year as well as it did in the previous year. Acharya, the factory manager, expressed the hope that Bhasker Mitter would achieve a higher sales level next year because he had taken delivery of an expensive and new piece of plant and machinery, which should increase production.

    Purnendu Kumar, the Managing Director, presented the following chart submitted by his accountant, Naveen Sethi, in his efforts to discuss a plan for the future:



    Naveen Sethi explained the chart, and then the meeting adjourned for lunch:

You are required to

a) Describethecost-volume-profitrelationshipsimpliedinthestatementsofAnalysisBhaskerMitter andAcharya.

b) Give a possible explanation of the chart prepared by Naveen Sethi.

Answers and Approaches to Activities

Activity 9.1

Influence of change in variable costs	Decrease 20%	Decrease 10%	Normal Volume	Increase 10%	Increase 20%
Net profit per unit (Rs.)	.40	.30	.20	.10.	0
% change in profit	+100%	+50%	-	-50%	-100%
Return of Investment	40%	30%	20%	10%	0%
Break -even point (Rs.)	2,66,667	2,90,909	3,20,000	3,55,556	4,00,000

Conclusions

a) 20% increase in variable costs raises break-even point to the present normal sales volume leaving no profit at all.

b) 20% decrease in variable cost doubles profit per unit, lowers the break-even point to almost Rs.1,50,000 below the normal sales volume, and yields 100% more profit.

Influence of change in fixed costs:

Influence of change in fixed costs:					
Net profit per Unit (Rs.)	.36	.28	.20	.12	.04
% change in Profit	+80%	+40%	–	–40%	–80%
Return on investment	36%	28%	20%	12%	4%
Break-even point (Rs.)	2,56,000	2,88,000	3,20,000	3,52,000	3,84,000

Conclusions

a) A 20% increase in fixed costs still preserves the profit, but a 20% decrease lowers the break-even point to the lowest of any situation so far.

b) A decrease in fixed costs does not yield the same profit as does the decrease in variable costs.

Influence of all four factors	Left column		Normal Volume	Right Column	
	Decrease in Price	10%		Increase in price	10%
	Increase in volume	12%		Decrease in volume	12%
	Increase in variable costs	4%		Decrease in variable costs	4%
	Increase in fixed costs	5%		Decrease in fixed costs	5%
Net profit per unit (Rs.)		.01	.20		.3763
% change in profit		-94.4%	-		+65.6%
Return on investment		,1.12%	20%		33.1%
Break-even point (Rs.)		3,97,100	3,20,000		2,69,600

Conclusions

a) The Break-even point is quickly reached when prices are reduced and costs increase, yet volume remains insufficient to overcome changes.

b) An increase in price accompanied by a decrease in volume coupled with a cost reduction programme will lead to the most satisfactory results.

Activity 9.2

1. No 2. Yes 3. No 4. Yes 5. No 6. (a) 7. (b) 8. (c) 9. (a) 10. Yes

Solution:

$$\text{P/V ratio} = 1 - \text{variable cost ratio}$$

$$= 1 - \frac{6 \text{ lakhs}}{10 \text{ lakhs}} = 1 - .6 = .4 \text{ or } 40\%$$

Activity 9.4

Fixed Costs:	Rent, rates and taxes
	Executive salaries Insurance
	Audit fees Insurance
Variable Costs	Direct materials
	Direct labour
	Power and fuel
	Discount on sales
	Salesman's commission
Semi-variable costs:	Maintenance and supervision
	Telephone
	Inventory carrying costs
	Publicity and Advertising
	Transport and vehicles

Activity 9.6

Figure 9.6 : Rise in sales level, increase in profit, break-even point lowered, and margin of safety increased.

Figure 9.7 : Variable cost rises, the total cost rises, revised profit declines, break-even point rises, margin of safety is lowered.

Figure 9.8 : Fixed cost rises (please note that the vertical intercept of the total cost line shifts upwards in contrast with Figure 9.7 where the revised total cost line commences from the same point as the original total cost line), total costs rise, revised profit declines, break-even point rises, am margin of safety is reduced.

Figure 9:9 : Capacity expansion increases both profits and fixed costs. The break-even point is increased, and the safety margin is decreased.

Figure 9.10 : Shows how the profit zone beyond the break-even point is appropriate among suppliers of capital. It also shows the profits retained in the business.

Figure 9.11 : Note the steepness of the slope of individual product contribution lines. This indicates relative profitability. The figure is a profit graph with average and individual product contribution lines. The break-even point and margin of safety can be determined. They are not marked on the graph.

Answers to Self-assessment Questions/Exercises

7. (a) False (b) True (c) False (d) True (e) False (f) False 8. (c) 9. (d) 10. (a)

11. (b)

12.

	Old profit	New Profit
Sales	1,00,00,000	1,00,00,000
Variable expenses	50,00,000	45,00,000
Contribution	50,00,000	55,00,000
Fixed expenses	10,00,000	10,00,000
	40,00,000	45,00,000

13. **(a) Solution**

$$BE = \frac{\text{Fixed expenses}}{\text{P/V ratio}}$$

PV ratio = 1 – variable cost ratio

= 1–.30 = .70 or 70%

$$\text{Hence, BE} = \frac{\text{Rs. } 63,000}{70\%} = \text{Rs. } 90,000$$

14. **(c) Solution**

Selling price per unit = Rs. 30,000/10,000 = Rs. 3

Variable cost per unit = Rs. 15,000/10,000 = RS. 1.50

Contribution per unit = Rs. 3.00– Rs 1.50 = Rs. 1.50

$$\text{B.E. point (unit)} = \frac{\text{Fixed expenses}}{\text{Contribution per unit}}$$

$$= \frac{\text{Rs. } 9,000}{1.50} = 6,000 \text{ units}$$

Margin of safety = Units sold - break-even sales (units)

= 10,000 – 6,000= 4,000

15 **(d) Solution**

$$BEP = \frac{\text{Fixed Costs}}{\text{Contribution per unit}}$$

$$BEP = \frac{\text{Rs. } 1,00,000}{10} = 10,000 \text{ units}$$

If BEP is reduced to 8,000 units

$$\text{Contribution} = \frac{\text{Fixed Costs}}{\text{New Break even point}} = \frac{1,00,000}{8,000 \text{ units}}$$

= Rs. 12.5 per unit

Selling price = variable expenses + Contribution

= Rs.10+ Rs. 12.50 = Rs.22.50

16 **(b) Solution**

$$\text{B.E. point (unit)} = \frac{\text{Fixed Costs} \times \text{sales}}{\text{Sales} - \text{variable costs}}$$

$$= \frac{30,000 \times 1,00,000}{1,00,000 - 30,000} = \text{Rs. } 42,857$$

$$\text{Alternatively, BEP (Rs.)} = \frac{\text{Total fixed expenses}}{1 - \frac{\text{Total variable expenses}}{\text{Total sales}}}$$

$$= \frac{30,000}{1 - \frac{30,000}{1,00,000}} = \frac{30,000}{7} = \text{Rs. } 42,857$$

17 Solution

(a) Calculation of Break -even point

Product	A	B	C	D	TOTAL
Sales mix	$33^1/_3\%$	$41^2/_3\%$	$16^2/_3\%$	$8'/_3\%$	100%
Sales(Rs.)	20,000	25,000	10,000	5,000	60,000
Variable cost(Rs.)	12,000	17,000	8,000	2,000	39,000
Contribution	8,000	8,000	2,000	3,000	21,000
Fixed costs	-	-	-	-	14,700
Profit	-	-	-	-	6,300

$$\text{BEP (Rs.)} = \frac{\text{Fixed costs}}{1 - \frac{\text{Total variable costs}}{\text{Total sales (Rs.)}}}$$

$$= \frac{14,700}{1 - \frac{39,000}{60,000}} = \frac{14,700}{1-.65} = \frac{14,700}{35}$$

= Rs. 42,000 or 70% capacity

b) Effect of change in sales mix

Products	Sales (Rs.)	Variable Cost (Rs.)	Contribution (Rs.)	Fixed Cost (Rs.)	Profit (Rs.)
A (25%)	15,000	9,000	6,000	-	-
B (40%)	24,000	16,320	7,680	-	-
C (30%)	18,000	14,400	3,600	-	-
D (5%)	3,000	1,200	1,800	-	-
Total (100%)	60,000	40,920	19,080	14,700	380

$$\text{EP (Rs.)} = \frac{14,700}{1 - \frac{40,920}{60,000}} = \text{Rs. } 46226.42 \text{ or } 77\% \text{ of total capacit}$$

c) P/V ratio plays a very important role in shifting the break-even point. This r io is given by

$$\frac{\text{Contribution}}{\text{Sales}}$$

Alternative formulations would be : $\text{Sales} = \frac{\text{Contribution}}{\text{P/V ratio}}$

Contribution = P/V ratio x sales.

BEP will be $= \frac{\text{Fixed costs}}{\text{P/V ratio}}$

18. (a) The CVP relationships implied in the statements are as follows:

Bhasker Mitter:

Greater volume in terms of sales was the answer to the problem of the company.

High volume would aim at lowering the total unit cost per product. A low contribution per unit with high fixed costs would require high volume to obtain a reasonable profit. A low volume with high fixed costs would be severe for company profitability.

"The sales value was the same as the year before with no major volume

change yet the profit had dropped ..... product 423 had not sold in the current year as well as in the previous year'. This result appears to be due to a change in the mix of sales with a greater volume of less profitable products than product 423, making up the total volume of sales in units:

Acharya:

'Delivery of an expensive raw piece of plant and machinery and this should mean an increased production rate'. This machinery will increase fixed costs. Although the increased production rate will reduce unit cost, the profit implied in the increased contribution per unit is dependent on the increased volume . Higher fixed costs will have reduced the margin of safety.

b) A possible explanation of the chart supplied by Naveen Sethi is as follows:

Plan A gives the highest costs with the resultant highest break-even point and the lowest margin of safety. Variable costs and revenue are indicated as a constant per unit. Fixed costs are indicated as a constant amount for the range of activity shown.

Plan B gives a lower level of fixed costs than plan A, which lowers the break-even point with a corresponding increase in the margin of safety.

Plan C gives increased profit for the same level of fixed costs as plan 13, thus lowering the break-even point further and giving the highest margin of safety.

The increased profit may be explained by a reduction of variable costs or a possibly improved mix of sales, or perhaps both.

9.10 FURTHERREADINGS

Horngren, C.T. Datar, Srikant M, Foster. George M, 2002, *Cost Accounting: A Managerial Emphasis* (11th ed): Prentice Hall of India: New Delhi

Khan M.Y. and Jain P.K., 2000, Management Accounting (Chapter 14), Tata McGraw Hill Glautier, M.W.E. and B, Underdown , 1982, *Accounting Theory and Practice,* ELBS. Bombay (Chapter 32)

Dopuch, N Birnbirg J.G. and Joel Demiski, 1974, *Cost Accounting* Harcourt Brace Javanovich: New York (Chapter4)

UNIT 10 BUDGETINGAND BUDGETARY CONTROL

Objectives

The objectives of this unit are to familiarise you with:

- the basic aspects of financial planning and the role of budgeting
- various types of budgets
- some new ideas and development in the area of budgeting.

Structure

10.1 Introduction

10.2 Financial Planning

10.3 What is a Budget?

10.4 Budgetary Control

10.5 Classification of Budgets

10.6 Control Ratios

10.7 Performance Budgeting

10.8 Zero base Budgeting

10.9 Summary

10.10 Keywords

10.11 Self-assessment Questions/Exercises

10.12 Further Readings

10.1 INTRODUCTION

At the beginning of the course, we have emphasised the need for managers to be forward-looking. For you, therefore, reviewing the past information alone is not enough since your job involves predicting and shaping the future of your enterprises. This requires proper planning about all activities of the business. Finance being the lifeblood of a business, financial planning is of utmost significance to a businessman. A budget is an essential tool for financial planning and control.

However, before we come to the intricacies of budgeting, it will be useful for you to understand the meaning and implications of financial planning.

10.2 FINANCIAL PLANNING

Financial planning is concerned with the raising of funds and their effective utilisation to maximise the company's wealth. It includes the determination of:

- the amount of funds needed for implementing various business plans
- the pattern of financing, i.e. the form and proportion of various corporate securities, such as shares, debentures, bonds, bank loans to be issued or raised
- the timing of floatation of various corporate securities

Despite a sound financial plan, the desired results may not be achieved if there is no effective control to ensure its implementation. The budget represents a set of yardsticks or guidelines for use in controlling an organisation's internal operations. The management, through budget, can evaluate the performance of every level of the organisation. The discrepancy between plan performance and actual performance is highlighted through budgets. The organisation may have to change the course of its operations in a particular area or revise its plans keeping in view the changing conditions.

It will, therefore, be useful for you to understand the complete budgeting process. In this unit, we shall explain what budget is and what budgetary control means. Besides the importance of budgeting as a management tool, the techniques of preparing various types of budgets will also be discussed.

10.3 WHAT IS ABUDGET?

A budget is a plan expressed in quantitative, usually monetary terms, covering a specific period of time, usually one year. In other words, a budget is a systematic plan for the utilisation of workforce and material resources. In a business organisation, a budget represents an estimate of future costs and revenues. Budgets may be divided into two basic classes: Capital Budgets and Operating Budgets. Capital budgets are directed towards proposed expenditures for new projects and often require special financing. The operating budgets are directed towards achieving short term operational goals of the organisation, for instance, production or profit goals in a business firm. Operating budgets may be sub-divided into various departmental or functional budgets. The main characteristics of a budget are:

- It is prepared in advance and is derived from the long term strategy of the organisation
- It relates to the future period for which objectives or goals have already been laid down
- It is expressed in quantitative form, physical or monetary units, or both.

Different types of budgets are prepared for different purposes,e.g. Sales Budget, Production Budget, Administrative Expense Budgets, Raw-material Budget, etc. All these sectional budgets are afterwards integrated into a master budget that represents the organisation's overall plan. A budget is useful in the following ways:

- It brings about efficiency and improvement in the working of the organisation.
- It is a way of communicating the plans to various units of the

organisation. By establishing the divisional, departmental, sectional budgets, exact responsibilities are assigned. It thus minimises the possibilities of buck-passing if the budget figures are not met.

- It is a way of motivating managers to achieve the goals set for the units.
- It serves as a benchmark for controlling ongoing operations.
- It helps in developing a team spirit where participation in budgeting is encouraged.
- It helps in reducing wastage and losses by revealing them in time for corrective action.
- It serves as a basis for evaluating the performance of managers.
- It serves as a means of educating the managers.

10.4 BUDGETARYCONTROL

No system of planning can be successful without having an effective and efficient system of control. Budgeting is closely connected with control. The exercise of control in the organisation with the help of budgets is known as budgetary control.

The process of budgetary control includes

1. preparation of various budgets
2. continuous comparison of actual performance with budgetary performance and
3. revision of budgets in the light of changed circumstances.

A system of budgetary control should not become rigid. There should be enough scope for flexibility to provide for individual initiative and drive. Budgetary control is an important device for making the organisation more efficient on all fronts. It is an essential tool for controlling costs and achieving the overall objectives.

Installing A Budgetary Control System

Having understood the meaning and significance of budgetary control in an organisation, it will be useful to know how a budgetary control system can be installed. This requires, first of all, finding answers to the following questions in the context of an organisation:

1) What is likely to happen?
2) What can be made to happen?
3) What are the objectives to be achieved?
4) What are the constraints, and to what extent their effects can be minimised?

Having found answers to the above questions, the following steps may be taken to install an effective budgetary control system in an organisation.

Organisation for Budgeting

Setting up a definite plan of organisation is the first step towards installing a budgetary control system in an organisation. A Budget Manual should be prepared giving details of the powers, duties, responsibilities and areas of operation of each executive in the organisation.

Responsibility for Budgeting

The responsibility for preparation and implementation of the budgets may be fixed as under:

Budget Controller

Although the Chief Executive is finally responsible for the budget programme, it is better to delegate a large part of the supervisory responsibility to an official designated as Budget Controller or Budget Director. Such a person should have knowledge of the technical details of the business and should report directly to the President of the Chief Executive of the organisation.

Budget Committee

The Budget Controller is assisted in his work by the Budget Committee. The Committee may consist of Heads of various departments, viz., Production, Sales Finance, Personnel, Purchase, etc., with the Budget Controller as its Chairman. It is generally the responsibility of the Budget Committee to submit, discuss and finally approve the budget figures. Each head of the department should have his own Sub-committee with executives working under him as its members.

Fixation of the Budget Period

'Budget period' means the period for which a budget is prepared and employed. The budget period depends upon the nature of the business and the control techniques. For example, a seasonal industry will budget for each season, while an industry requiring long periods to complete work will budget for four, five or even larger number of years. However, control purposes must prepare budgets both for long as well as short periods.

Budget Procedures

After establishing the budget organisation and fixing the budget period, the actual work or budgetary control can be taken upon the following pattern:

Key Factor

It is also termed as limiting factor. The extent of influence of this factor must first be assessed in order to ensure that the budget targets are met. It would be desirable first to prepare the budget relating to this particular factor and then prepare the other budgets. We are giving below an illustrative list of key factors in certain industries.

Industry	Key factor
Motor Car	Sales demand
Aluminium	Power
Petroleum Refinery	Supply of crude oil
Electro-optics	Skilled technicians
Hydel power generation	Monsoon

The key factors should be correctly identified and examined. The key factors need not be of a permanent nature. In the long run, the management may overcome the key factors by introducing new products, changing material mix, working overtime or extra shifts ,etc.

Making a Forecast

A forecast is an estimate of the future financial conditions or operating results. Any estimation is based on the consideration of probabilities. An estimate differs from a budget in that the latter embodies an operating plan of an organisation.

A budget envisages a commitment to certain objectives or targets, which the management seeks to attain on the basis of the forecasts prepared. A forecast, on the other hand, is an estimate based on the probabilities of an event. A forecast may be prepared in financial or physical terms for sales, production cost, or other resources required for business. Instead of just one forecast, a number of alternative forecasts may be considered to obtain the most realistic, overall plan.

Preparing Budgets

After the forecasts have been finalised, the preparation of budgets follows. The budget activity starts with the preparation of the sales budget. Then production budget is prepared based on the sales budget and the production capacity available. The financial budget (i.e. cash or working capital budget) will be prepared on the basis of sales forecast and production budget. All these budgets are combined and coordinated into a master budget. The budgets may be revised in the course of the financial period if it becomes necessary to do so, in view of the unexpected developments, which have already taken place or are likely to take place.

Choice Between Fixed and Flexible Budgets

A budget may be fixed or flexible. A fixed budget is based on a fixed volume of activity. It may lose its effectiveness in planning and controlling if the actual capacity utilisation is different from what was planned for any particular unit or time e.g. a month or a quarter. The flexible budget is more useful for changing levels of activity as it considers fixed and variable costs separately. Fixed costs, as you are aware, remain unchanged over a certain range of output. Such costs change when there is a change in capacity level. The variable costs change in direct proportion to output. If ‘flexible

budgeting approach is adopted, the budget controller can analyse the variance between actual costs and budgeted costs depending upon the actual level of activity attained during a period of time. This will be explained in detail a little later.

Activity 10.1

Arrange a meeting with one of the officials concerned with budgetary control and administration in your organisation and discuss the following points:

a) The nature and the exact nomenclature of the budgetary control system.

b) The time for which the system has been in operation.

c) The objectives and scope activities) of the system.

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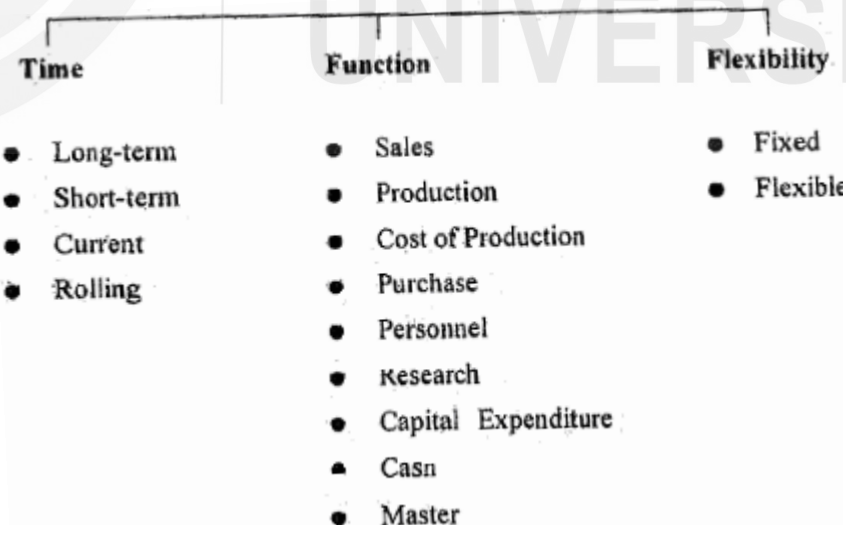
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10.5 CLASSIFICATION OFBUDGETS

Budgets can be classified into different categories on the basis of Time, Function, or Flexibility. The different budgets covered under each category are shown in the following chart:

Chart 10.1: Classification of Budgets



Let us discuss some of the budgets covered in the above classification.

Rolling Budget

Some organisations follow the practice of preparing a rolling or progressive budget. In such organisations, a budget for a year in advance will always be

there immediately after a month, or a quarter, passes, as the case may be, a new budget is prepared for twelve months. The figures for the month/quarter, which have rolled down, are dropped, and the next month/quarter figures are added. For example, suppose a budget has been prepared for the year 2020, after the expiry of the first quarter ending 31st March 2020, a new budget for the full year ending 31st March. In that case, 2021 will be prepared by dropping the figures for the quarter which has rolled (i.e. quarter ending 31st March 2020) and adding the figures for the new quarter ending 31st March 2021. The figures for the remaining three quarters ending 31st December 2020 may also be revised, if necessary. This process will continue whenever a quarter ends and a new quarter begins.

Sales Budget

Sales Budget generally forms the fundamental basis on which all other budgets are built. The budget is based on projected sales to be achieved in a budget period. The Sales Manager is directly responsible for the preparation and execution of this budget. He usually takes into consideration the following organisational and environmental factors while preparing the sales budget:

Organisational factors	**Environmental Factors**
Past sales figures and trends Salesmen's estimates Plant capacity Orders on hand Proposed expansion or discontinuation of products Availability of material or supplies Financial aspect Cost of distribution of goods	General trade prospects Seasonal fluctuations Potential market Degree of competition Government controls, rules and regulations relating to the industry Political situation and its impact on the market

It is desirable to break up the entire sales budget on the basis of different products, time periods and sales areas or territories.

Illustration 10.1

Andhra Vinyl Ltd. has three sales divisions at Madras, Bangalore and Hyderabad. It sells two products - I and II. The budgeted sales for the year ending 31st December 2002 at each place are given below:

Madras	Product I	50,000 units @ Rs. 16 each
	Product II	35,000 units @, Rs. 10 each
Bangalore	Product II	55,000 units @ Rs. 10 each
Hyderabad	Product I	75,000 units @ Rs. 16 each

The actual sales during the same period were:

Madras	Product I	62,500 units @ Rs.16 each
	Product II	37,500 units @ Rs. 10 each

Bangalore	Product II	62,500 baits @ *Rs.* 10 each
Hyderabad	Product I	77,500 units @ Rs. 16 each

From the reports of the sales department it was estimated that the sales budget for the year ending 31st December 2003 would be higher than 2002, budget in the following respects:

Madras	Product I	4,000 units
	Product II	2,500 units
Bangalore	Product II	6,500 units
Hyderabad	Product I	5,000 units

Intensive sales campaign in Bangalore and Hyderabad is likely to result in additional sales of 12,500 units of products I in Bangalore and 9,000 units of Products II in Hyderabad. Let us prepare a sales budget for the period ending 31st December, 2003.

Andhra Vinyl Limited
Sales Budget

Division	Product	Budget for 2003			Budget for 2002			Actual Sales for 2002		
		Qty. (Units)	Price Rs.	Value Rs.	Qty.	Price	Value	Qty	Price	Value
Madras	I	54,000	16	8,64,000	50,000	16	8,00,000	62,500	16	10,00,000
	II	37,500	16	3,75,000	35,000	10	3,50,000	37,500	10	3,75,000
	Total	91,500		12,39,000	85,000		11,50,000			13,75,000
Bangalore	I	12,500	16	2,00,000	—	—	—	—	—	—
	II	61,500	10	61,15,000	55,000	10	5,50,000	62,500	10	6,25,000
	Total	74,000		8,15,000	55,000	10	5,50,000	62,500	10	6,25,000
Hyderabad	I	80,000	16	12,80,000	75,000	16	12,00,000	77,500	16	12,40,000
	II	9,000	10	90,000	—	—	—	—	—	—
	Total	89,000		13,70,000	75,000		12,00,000	—	—	12,40,000
Product	I	1,46,500	16	23,44,000	1,25,000	16	20,00,000	1,40,000	16	22,40,000
Product	II	1,08,000	10	10,80,000	90,000	10	9,00,000	1,00,000	10	10,00,000
	Total	2,54,500		34,24,000	2,15,000		29,00,000	2,40,000		32,40,000

Production Budget

This budget provides an estimate of the total volume of production distributed product-wise with the scheduling of operations by days, weeks and months, and a forecast of the inventory of finished products. Generally, the production budget is based on the sales budget. The responsibility for the overall production budget lies with the Works Manager and that of departmental production budgets with departmental works managers.

Production budget may be expressed in physical or financial terms or both in relation to production. The production budgets attempt to answer questions like: (i) What is to be produced? (ii) When it is to be produced? (iii) How it is to be produced? (iv) Where it is to be produced? The production budget

envisages the production programme for achieving the sales target. It serves as a basis for preparing related cost budgets, e.g., materials cost budget, labour cost budget, etc. It also facilitates the preparation of a cash budget. The production budget is prepared after taking into consideration several factors like (I) Inventory policies, (ii) Sales requirements, (iii) Production stability, (iv) Plant capacity, (v) Availability of materials and labour, (iv) Time taken in the production process, etc.

Activity 10.2

From the following details of Mysore Cement Works Limited, complete the production budget for the three-month period ending March 31, 2003 (Production budget for product P has already been worked (out).

Type of Product	**Estimated stock on Jan 1, 2003**	**Estimated sales during Jan-March 2003**	**Desired closing stock on March 31, 2003**
	(Units)	(Units)	(Units)
P	1,000	5,000	1,500
Q	1,500	7500	2,500
R	2.000	6.500	1,500
S	1,500	6.000	1,000

Mysore Cement works Limited
Production Budget for three months to March 31, 2003

			Units	
Product P	:	Estimated Sales	5,000	
		Add : Desired closing stock	1,500	
			6,500	
		Less : Estimated opening stock	1,000	5,500
Product Q	:	Estimated Sales	—	
		Add : Desired closing stock	—	
			—	
		Less : Estimated opening stock	—	
Product R	:	Estimated Sales	—	
		Add : Desired closing stock	—	
			—	
		Less : Estimated opening stock	—	
Product S	:	Estimated sales	—	
		Add : Desired closing stock	—	
			—	
		Less : Estimated opening stock	—	
		Total units to be produced		25,500

Production Costs Budgets

There are three elements of costs, namely direct material, direct labour and overheads. Separate budgets for each of these elements have to be prepared.

The direct materials' budget has two components, (i) materials requirement budget, and (ii) materials procurement or purchase budget. The former deals with the total quantity of materials required during the budget period, while the latter deals with the materials to be acquired from the market, during the budget period. Materials to be acquired are estimated after considering the closing and the opening inventories and the materials for which orders have already been placed.

Illustration 10.2

The Sales Director of Andhra Paraffin Company expects to sell 25,000 units of a particular product next year. The Production director consulted the store-keeper who gave the necessary details as follows:

Two kinds of raw materials, P and Q, are required for manufacturing the product. Each unit of the product requires 2 units of P and 3 units of Q. The estimated opening balances at the commencement of the next year are:

Finished products	:	5,000 units
Raw material P	:	6,000 units
Raw material Q	:	7,500 units

The desirable closing balances at the end of the next year are:

Finished	:	7,000 units
Raw material P	:	6,500 units
Raw material Q	:	8,000 Units

Let us prepare a statement showing material purchase budget for the next year. units to be produced = Sales + Desired closing Stock - Opening Stock

= 25,000 + 7,000 - 5000 = 27,000 units.

Materials Purchase or Procurement Budget

	Finished product units	**Materials in units**	
		P	**Q**
Production budget	27,000	54,000	81,000
Estimated Opening Balance	+5,000	-6,000	-7,500
	32,000	48,000	73,500
Estimated Closing Balance	-7,000	+6,500	+8,000

Estimated Sales of Product	25,500		
Estimated Purchase of Materials		54,500	81,500

Direct Labour Budget: Direct labour budget, like direct materials budget, may be divided into two categories, (i) direct labour requirement budget and (ii) direct labour procurement budget. The former deals with the total direct labour requirement in terms of quantity or/and value, while the latter states the additional direct workers to be recruited.

Activity 10.3

The production budget of a factory shows that 1,000 units of a product are to be manufactured during the next month consisting of 25 working days. Each unit is expected to take two hours, and each worker is required to work for 8 hours a day. Calculate (a) the number of workers required to complete the job, (b) the number of additional workers to be recruited in case the factory has already 8 workers and likes to keep two workers in reserve for possible absenteeism, and (c) the Labour Budget if the wages of existing and the new workers are Rs. 500 and Rs. 600 p.m. respectively. Part (a) has already been worked out.

a) Total labour hours required = $1,000 \times 2 = 2,000$ hours

Number of workers required if the job is to be done in a day = $\frac{2,000}{8} = 250 = 250$

Since the job is to be completed in 25 working days, the number of workers required are = $\frac{250}{25} = 10$

b) Number of workers required [as per (a) above} .....

Add : Workers to be kept in reserve .....

No. of additional workers to be recruited .....

c) **Direct Labour Budget for Next Month**

Current Month			Next Month		
No.	Rate	Amount	No.	Rate	Amount
			Existing		
8	.....	.....	.....	.....	.....
			Additional		
			.....	.....	.....
	Total		Total		

Overhead Budget The overheads may relate to the factory, general administration selling and distribution function. Therefore, separate budgets may be prepared for factory overheads, administrative overheads, and selling and distribution overheads.

Factory Overheads Budget: Factory or manufacturing overheads include the cost of indirect material, indirect labour and indirect expenses. Manufacturing overheads may be classified into in the volume of output, (ii) Variable Overheads, i.e. which tend to vary with the output; and (iii) Semi-variable Overheads, i.e. which are partly variable and partly fixed. The manufacturing overheads budget will provide an estimate of these overheads

to be incurred during the budget period.

Fixed manufacturing overheads can be estimated based on past information and knowledge of any changes which may occur during the ensuing budget period. Variable overheads are estimated after considering the scheduled production and operating conditions in the budget period.

Illustration 10.3

From the following average figures of previous quarters, let us prepare manufacturing overhead budget for the quarter ending March 31, 2003. The budgeted output during this quarter is 8,000 units.

The figures for the previous quarter are:

Fixed overheads	Rs. 40,000
Variable overheads	20,000 (@ Rs. 5 per unit)
Semi-variable	20,000 (40% fixed and 60% varying @ Rs. 3 per unit)

Manufacturing Overheads Budget for the Quarter ending 31st March 2003

(Output 8,000 units)

Fixed overheads		40,000
Variable overheads @ **Rs.** 5 per unit		40,000
Semi-variable overheads	8,000	
Fixed		
Variable (@Rs. 3 per unit)	24,000	32,000
Total Overheads		1,12,000

Administrative Overheads Budget: This budget covers the administrative expenses, including the salaries of administrative and managerial staff. A careful analysis of the needs of all administrative departments of the enterprise is necessary. The minimum requirements for the efficient operation of each department can be estimated on the basis of costs for the previous years and after a study of the plans and responsibilities of each administrative department for the budget period. The budget for the entire administrative function is obtained by integrating the separate budgets of all administrative departments.

Selling and Distribution Overheads Budget: This budget includes all expenses relating to selling, advertising delivery of goods to customers, etc. It is better to analyse such costs according to products, types of customers, territories, and the sales departments. The responsibility for the preparation of this budget rests with the executives of the sales department. There must be a relationship of selling expenses with the volume of sales expected, and an

effort should be made to control the costs of distribution. The preparation of the budget would depend on analysis of the market situation by the management, advertising policies, research programmers, and the fixed and variable elements.

Illustration 10.4

Let us prepare a Sales Overheads Budget for the quarter ending 31st March, 2021 from the estimates given below:

	Rs.
Advertisement	12,500
Salaries of the sales department	25,000
Expenses of the sales department	7,500
Counter salesmen salaries and allowances	30,000

Commission to counter salesmen is payable at 1% of sales executed by them.

Travelling salesmen are entitled to a commission at 10% on sales affected through them and a further 5% towards expenses.

Sales Territories	**Sales at Counters**	**Sales by Traveling salesmen**	**Total estimated sales**
A	4,00,000	50,000	4,50,000
B	6 00 000	75 000	6 75 000
C	7,00,000	1,00,000	8,00,000

Sales Overheads Budget

	Estimated Sales in Territories		
	Rs. 4,50,000	Rs. 6,75,000	Rs. 8,00,000
Fixed Overheads			
Advertisement	12,500	12,500	12,500
Salaries of Sales Department	25,000	25,000	25,000
Expenses of Sales Department	7,500	7,500	7,500
Counter salesmen's salaries and allowances	30,000	30,000	30,000
	75,000	75,000	75,000
Variable Overheads			
Counter salesmen commission @ 1% on sales	4,000	6,000	7,000
Travelling salesmen commission @ 10%	5,000	7,500	10,000
Expenses @ 5%	2,500	3,750	5,000
	11,500	17,250	22,000
Total sales overheads	86,500	92,250	97,000

Cash Budget

Planning cash and controlling its use are essential tasks. If the future cash

flows are not properly anticipated, it is likely that idle cash balances may be created, resulting in unnecessary losses. It may also result in cash deficits and consequent problems. The financial manager should, therefore, plan the needs and uses. Budget is a useful device for this purpose.

The cash budget is a summary of the firm's expected cash inflows and outflows over a particular period of time. In other words, cash budget involves a projection of future cash receipts and cash disbursements over various time intervals.

A cash budget helps the management in:

a) determining the future cash needs of the firm

b) planning for financing of those needs

c) exercising control over cash and liquidity of the firm

The overall objective of a cash budget is to enable the firm to meet all its commitments in time and at the same time prevent accumulation at any time of unnecessary large cash balances with it.

There are two types of flows in both these components, *viz. operating cash flows* and *financial cash flows.* Some common elements of each are as follows:

Cash Inflows -

a) Operating: cash sales, receivable collections.

b) Financial: interest receipts, sale of marketable securities, issue of new securities.

Cash Outflow-

a) Operating: wage payments, payments of bills and accounts payable, and capital expenditure Payable.

b) Financial: dividend payments, interest payments, redemption of securities, loan repayments, purchase of marketable securities, tax payments.

Sales Work Sheet

Sales bring in a major part of cash inflows. All sales may not be against cash; credit sales are pretty common. Each business establishment has its own credit policy for promoting sales. Even when care is taken to ensure that credit sales do not exceed the permitted percentage of total sales and that debtors do not default in paying bills in time, it is a common experience that the total amount of sales is recovered over a period of time.

Let us take an example. In a business, 10 per cent of the sales value in a month is realised in cash during the same month; 50 per cent is received in the next month; and the remaining 40 per cent in the month after that. We can find out the estimated cash inflow due to sales for every month with the help of the data on past and future sales.

Sales Work Sheet January to March 2021

	Nov.	Dec.	Jan.	Feb.	March
	2020	2020	2021	2021	2021
Past Sales	960	900			
Estimated future sales	-	-	900	1,000	1,000
Estimated Cash Receipts from sales:					
10% of current month's sales			90	100	100
50% of last month's sales			450	450	500
40% of previous to last Month's sale			384	360	360
Total Cash Collections from receivables			924	910	960

The total cash collections from receivables will be transferred to the cash budget Proforma.

Similarly, a Purchase Work Sheet can also be prepared to find out the estimated total cash disbursements for purchases. For example, 50 per cent of current month's purchases may be paid for in the current month, 40 per cent in the next month and the remaining 10 per cent in the month after that.

A Proforma Cash Budget with hypothetical figures in presented below

Proforma for Cash Budget

(In Rs.)

	Months		
Estimated Cash Inflows:	**Jan.**	**Feb.**	**March**
Cash Sales (including collections of current and previous month's sales)	9.60		
Others	1.90		
Total	11.50		
Cash Outflow			
Bills for Purchases	6.83		
Factory Expenses	3.49		
Head Office Expenses	1.54		
Interest	1.21		
Others	0.40		
Total	13.47		
Excess Inflow during the-month (1-2)	1.97		
Opening Cash Balance	2.32		
Closing Cash Balance (4+3)	0.35		
Minimum Cash Balance Needed	2.00		
Estimated Cash Surplus (5-6) - or Deficit (6-5)	1.65		

Illustration 10.5

You are appointed as the Finance Manager of Bihar Polymers Limited. Prepare a cash budget for six months of 2020 with the help of the following information:

a) Sales on credit cost of material and wages are budgeted as follows (figures for November and December of the previous year are the actual figures for those months).

Months	Credit sales	Cost of material	Wages
Nov.	30,000	5,000	10,000
Dec.	32,000	6,000	12,000
Jan.	28,000	5,000	10,000
Feb.	31,000	7,000	11,000
March	34,000	8,000	12,000
April	29,000	5,000	9,000
May	30,000	6,000	11,000
June	36,000	7,000	12,000

b) Fixed overheads amount to Rs. 10,000 per month.

c) Preference dividend of Rs. 8,000 for the half-year will be due in June.

d) Income tax amount of Rs. 10,000 is payable in January.

e) Progress payments under a building contract are due as follows:

March31	Rs. 12,000
May31	Rs. 15,000

f) Goods are sold on terms: Net cash in the following month. Experience indicates that 80% of debtors pay within the period of credit and the remainder do not pay until the following month.

g) Cost of material is payable in the month following the month in which the cost is incurred. Half of the purchases are subjected to a 2% discount and the remaining is payable net.

h) The company pays all its accounts promptly.

Cash Budget

	Jan. (Rs.)	Feb. (Rs.)	March (Rs.)	April (Rs.)	May (Rs.)	June (Rs.)
a) **Cash Inflows**						
Collection from Credit Sales:						
i) First month following sales (80% of sales)	25,600	22,400	24,800	27,200	23,200	24,000
ii) Second month following sales	6,000	6,400	5,600	6,200	6,800	5,800
Total Cash Receipts	31,600	28,800	30,400	33,400	30,000	29,800
b) **Cash Outflows**						
Fixed Overheads	10,000	10,000	10,000	10,000	10,000	10,000
Preference dividend	——	——	——	——	——	8,000
Income Tax	10,000	——	——	——	——	——
Progress Payments under building contracts	——	——	12,000	——	15,000	——
Purchases	5,940	4,950	6,930	9,920	4,950	5,940
Wages (assumed to be payable in the month)	10,000	11,000	12,000	9,000	11,000	12,000
Total Cash Payments	35,940	29,950	40,930	26,920	40,950	35,940
Surplus or Deficiency (i.e. A-B)	(4,340)	2,850	(10,530)	6,480	(10,950)	(6,140)

Purchase Budget

	January	February	March
Desired ending inventory (at cost price)	90,000	97,500	1,12,500
Add Cost of goods (Current Month)	37,500	45,000	45,000
Total requirement	1,27,500	1,42,500	1.57,500
Less beginning inventory	(60.000)	(90,000)	(97,500)
Purchases	67,500	52,500	60,000

It will be seen that deficiency of cash occurs in the months of January, March, May and June, mainly because some unusual payments like preference dividend, advance income tax and progress payments under building contract are to be made in those months. With the help of the cash budget, the company will be able to plan its short-term financing. One of the courses is to obtain overdraft facilities from its bankers.

The net cash position in a particular period may show a deficit. Hence, arrangements should be made in advance to fill this gap by borrowing or by other means. In case there is a surplus balance, the desirability of investing it in government or other short-term securities should be examined. Any surplus should be invested in safe securities, provided the surplus is reasonably considerable and the investment period is short of ensuring quick conversion of securities in cash without loss of value.

Activity 10.4

Arrange a meeting with an accounting executive of any organisation and ascertain if cash budgeting is being practiced? Obtain a Proforma of cash budget for your record. What are the major sources of cash inflows and the main uses of cash outflows? In what way our organisation manages any deficit or surplus of cash revealed by the cash budget?

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Master Budget

The Master or final budget is a summary budget, which incorporates all functional budgets in a capsule form. It sets out the plan of operations for all departments in considerable detail for the budget period. The budget may take the form of a Profit and Loss Account and a Balance Sheet as at the end of the budget period.

The Master budget requires the a[p]proval of the Budget Committee before it is put into operation. Sometimes, a number of master budgets may have to be prepared before the final one is agreed upon. The budget generally contains details regarding sales (net), production costs, cash position, and key account balances (e.g. debtors, fixed assets, bills payable, etc.). It also shows the gross and net profits and the important accounting ratios.

Fixed and Flexible Budgets

Fixed Budget:

A fixed budget is designed to remain unchanged irrespective of the level of activity. This budget is prepared on the basis of a standard or fixed level of activity. Since the budget does not change with the change of level of activity, it becomes an unrealistic yardstick in case the level of activity (volume of production or sales) actually attained does not conform to the one assumed for budgeting purposes. The management will not be able to assess the performance of different heads on the basis of budgets prepared by them because they can serve as yardsticks only when the actual level of activity corresponds to the budgeted level of activity. On account of the limitations of fixed budgeting and its inability to provide for automatic adjustments when the volume changes. Firms whose sales and production cannot be accurately estimated have given up the practice of fixed budgeting

The Master Budget may have the following format:

Exhibit 10.1: Budget Format

Period	Normal Production capacity ____units	Budgeted capacity _____units	
Particulars	**Product 1 (Rs.)**	**Product 2 (Rs.)**	**Total (Rs.)**
Sales			
Cost of Sales :			
Direct materials, Direct labour, Variable Factory Overheads, Fixed Factory Overheads			
Add : Opening Stock			
Less : Closing Stock			
Gross Profit			
Administration Cost			
Selling and Distribution Cost			
Net Profit			
Assets:			
Fixed			
Current			
Total capital employed			
Ratios:			
Profit/Capital employed			
Sales/Capital employed			
Profit/Turnover			
Current Ratio			
Liquidity Ratio			
Appropriations			
Net Profit			
Dividends			
Reserves			
Taxes			
Balance of profit or Loss			

Flexible Budget: The Flexible Budget is designed to change in accordance with the level of activity attained. Thus, when a budget is prepared in such a manner that the budgeted cost for any level of activity is available, it is termed as flexible budget. Such a budget is prepared after considering the fixed and variable elements of cost and the changes that may be expected for each item at various levels of operations. Flexible budgeting is desirable in the following cases:

a) Where because of the nature of business, sales are unpredictable, e.g. in luxury or semi-luxury trades.

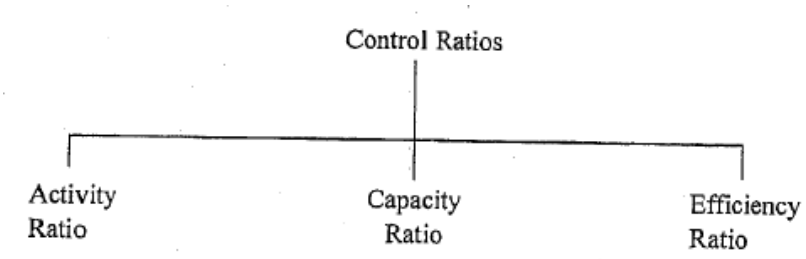
b) Where the venture is new and, therefore, it is difficult to foresee the demand **e.g.,** novelties and fashion products.

c) Where business is subject to the vagaries of nature, such as soft drinks.

d) Where progress depends on an adequate supply of labour and the business is in an area suffering from a shortage of labour.

10.6 CONTROL RATIOS

The budget is a part of the planning process. After the various budgets, including the master budget, have been prepared, you may like to compare actual performance with the budgeted performance. This can be done by using three important ratios as shown below:



The above ratios are expressed in terms of percentages. If the ratio works out to 100 per cent or more, the trend is taken as favourable. If the ratio is less than 100 per cent, the indication is taken as unfavorable. We shall discuss these ratios in some detail.

Activity Ratio: Activity Ratio is a measure of the level of activity attained over a period of time. It is obtained by expressing the number of standard hour's equivalent to the work produced as a percentage of the budgeted hours.

$$\text{Activity Ratio} = \frac{\text{Standard hours for actual prodction}}{\text{Budgeted Hours}} \text{X } 100$$

Capacity Ratio: This ratio indicates whether and to what extent budgeted hours of activity are actually utilized. It shows the relationship between the actual number of working hours and the maximum possible number of working hours in a budgeted period.

$$\text{Capacity Ratio} = \frac{Actual\ Hours\ Worked}{Budgeted\ Hours} X100$$

Efficiency Ratio: This ratio indicates the degree of efficiency attained in production. It is obtained by expressing the standard hour's equivalent to the work produced as a percentage of the actual hours spent in producing that work

$$\text{Efficiency Ratio} = \frac{Standard\ hours\ for\ actual\ production}{Actual\ \ Hours\ worked} X100$$

Activity 10.5

Calculate: Efficiency, Activity and Capacity ratios and comment on the results obtained for a factory that produces two units of a commodity in one standard hour. Actual production during a particular year is 34,000 units and the budgeted production for the year is 40,000 units. Actual hours operated are 16,000 (Some clueshave been provided).

Two units are produced in one standard hour. Hence, for the actual production of 34,000 units, the standard hours required will be 17,000 (i.e 34,000/2).

For budgeted production of 40,000 units, budgeted hours will be 20,000 (i.e. 40,000/2)

Efficiency Ratio:

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Activity Ratio:

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Capacity Ratio:

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Activity 10.6

In Activity 10.1, you had described the system of budgetary control in your organisation. Keeping in view the objectives of the system, you now critically evaluate the system in terms of its achievements and/or failures. What do you think are the causes for failure (total or partial)? Reflect on improving the system.

Achievements:

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Failures:

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Causes for failure:

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Ideas for improvement:

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10.7 PERFORMANCE BUDGETING

As explained in the preceding pages, budgeting is nothing but the technique of expressing, largely in financial terms, the management's plans for operating and financing the enterprise during specific periods of time. Any system of budgeting must provide for performance appraisal, as well as follow up measures in order to be successful.

The traditional (also known as line-item or object-account) budget in government enumerates estimated expenditures by type (and quantity) for a specified period of time, usually one year. The expenditure is classified by the object; the personnel are listed by type of position; the budget is divided into sections according to organisational units, department sections; and the types of expenditure are listed by category. The primary purpose of traditional budget, particularly in government administration, is to ensure financial control and meet the requirements of legal accountability, that is, to ensure that appropriation, sanction or allotment limits for different items are not related to the intended or planned outputs (or achievements). The necessity for linking the expenditures (or inputs in financial terms) to outputs (in physical terms), facilitating the evaluation of outcomes (or result of activities) cannot be over emphasised.

Performance budgeting (or programme budgeting) has been designed to correct the shortcomings of traditional budgeting by emphasising management's considerations/ approaches. Both the financial and physical aspects are incorporated into the budget. A performance budget presents the operations of an organisation in terms of functions, programmes, activities, and projects.

In performance budgeting (PB), precise detainment of job to be performed or services to be rendered is done. Secondly, the budget is prepared in terms of functional categories and their sub-division into programmes, activities, and projects. Thirdly, the budget becomes a comprehensive document. Since the financial and physical results are interwoven, it facilitates management control.

The main objectives of PB are:

i) to coordinate the physical and financial aspects;

ii) to improve the budget formulation, review and decision-making at all

levels of management

iii) to facilitate better appreciation and review by controlling authorities (legislature, Board of Trustees or Governors, etc) as the presentation is more purposeful and intelligible;

iv) to make more effective performance audit possible; and

v) to measure progress towards long-term objectives which are envisaged in a development plan.

Performance budgeting involves the evaluation of the performance of the organisation in the context of both specific, as well as, overall objectives of the organisation. It presupposes a crystal clear perception of organisational objectives in general and short-term business objectives as stipulated in the budget, in particular by each employee of the organisation, irrespective of his level. It thus, provides a definite direction to each employee and also a control mechanism to higher management.

Performance budgeting requires the preparation of periodic performance reports. Such reports compare budget and actual data, and show variances. Their preparation is greatly facilitated if the authority and responsibility for the incurrence of each cost element is clearly defined within the firm's organisational structure. In addition, the accounting system should be sufficiently detailed and coordinated to provide necessary data for reports designed for the particular use of the individuals or cost centers having primary responsibility for a specific cost.

The responsibility for preparing the performance budget of each department lies on the respective Department Head. Each Department Head will be supplied with a copy of the section of the master budget appropriate to his sphere. For example, the chief buyer will be supplied with a copy of the materials purchase budget to arrange forth purchase of necessary materials. Periodic reports from various sections of a department will be received by the departmental head that will submit a summary report about his department to the budget committee. The report may be daily, weekly or monthly, depending upon the size of the business and the budget period. These reports will be in the form of comparison of budgeted and actual figures, both periodic and cumulative. The purpose of preparing these reports is to promptly inform about the deviations in actual and budgeted activity to the person who has the necessary authority and responsibility to take necessary action to correct the deviations from the budget.

10.8 ZERO BASEBUDGETING

Earlier, we have explained the formulation of different types of budgets. Suppose the approach adopted in the formulation and preparation of budgets is based on current level of operations or activities, including current level of expenditure and revenue. In that case, such budgeting is known as traditional budgeting. This type of budgeting process generally assumes that the allocation of financial resources in the past was correct and will continue to hold good for the future. In most cases, an addition is made to the current

figures of cost to allow for expected (or even unexpected) increases. Consequently, the budget generally takes an upward direction year after year, in spite of generally declining efficiency. Such a system of budgeting cannot be expected to promote operational efficiency. It may, on the other hand, create several problems for top management. Some of these problems are:

- Programmes and activities involving wasteful expenditure are not identified, resulting in avoidable financial and other costs.
- Inefficiencies of a prior year are carried forward in determining subsequent years' levels of performance.
- Managers are not encouraged to identify and evaluate alternative means of accomplishing the same objective.
- Decision-making is irrational in the absence of rigorous analysis of all proposed costs and benefits.
- Managers tend to inflate their budget requests resulting in more demand for funds than their availability. This results in recycling the entire budgeting process.

Thus, the traditional budgeting technique may be quite meaningless in the present context when management must review or re-evaluate every task to utilize the scarce resources in a better manner or improve performance. The technique of zero-base budgeting provides a solution for overcoming the limitations of traditional budgeting by enabling top management to focus on priorities, key areas and alternatives of action throughout the organisation.

The technique of zero base budgeting suggests that an organisation should not only make decisions about the proposed new programmes, but should also review the **appropriateness of the existing programmes** from time to time. Such a review should particularly be done of such responsibility centers where there are a relatively high proportion of discretionary costs. Costs of this type depend on the discretion or policies of the responsibility centre or top managers. These costs have no direct relation to the volume of activity. Hence, management discretion typically determines the amount budgeted. Some examples are expenditure on research and development, personnel administration, legal advisory services.

Zero base budgeting, as the term suggests, examines or reviews a programme or function or responsibility from 'scratch'. The reviewer proceeds on the assumption that nothing is to be allowed. Therefore, the manager proposing the activity has to justify that the activity is essential and the various amounts asked for are reasonable considering the outputs or results or volume of activity envisaged. No activity or expense is allowed simply because it was being allowed or done in the past. Thus, according to this technique, each new or existing programme must be justified in its entirety each time a new budget is formulated. It involves:

- dealing with particularly all elements of mangers' budget requests
- critical examination of **ongoing activities** along with the newly proposed activities

- providing each manager a *range of choices* in setting priorities in respect of different activities and in allocating resources.

Process of Zero Base Budgeting

The following steps are involved in Zero base budgeting:

Determining the objectives of budgeting: The objective may be 'to effect cost reduction in staff overheads, or it may be to drop, after careful analysis, projects which do not fit into the achievement of the organisation's objectives etc.

Deciding on scope of application: The extent to which zero-base budgeting must be introduced has to be decided, i.e. whether it will be introduced in all areas of the organisation's activities or only in a few selected areas on a trial basis.

Developing decision units: Decision units for which cost-benefit analysis is proposed have to be developed so as to arrive at decisions whether they should be allowed to continue or to be dropped. Each decision unit, as far as possible, should be independent of other units so that it can be dropped if the cost analysis proves to be unfavourable for it.

Developing decision packages: A decision package for each unit should be developed. While developing a decision package, answers to the following questions would be desirable:

- Is it necessary to perform a particular activity at all? If the answer is in negative, there is no need to proceed further.
- How much has been the actual cost of the activity and what has been the actual benefit of both tangible as well as intangible forms?
- What should be the estimated cost of the level of activity and the estimated benefit from such activity?
- Should the activity be performed in the way it is being performed, and what should be the cost?

If the project or activity is dropped, can the unit be replaced by an outside agency Financial and Investment Analysis

After completing decision packages for each unit, the units are ranked according to the findings of cost-benefit analysis. Essential projects are identified and given the highest ranks. The last stage is that of implementing the decision taken in the light of the study made. It involves the selection and acceptance of those projects that have a positive cost-benefit analysis or are capable of meeting the organisation's objectives.

The above analysis shows that zero-base budgeting is in a way an extension of the method of cost-benefit analysis to the area of corporate budgeting.

Advantages of Zero Base Budgeting

Let us summarise the advantages of zero-base budgeting:

- It provides the organisation with a systematic way to evaluate different operations and programmes undertaken. It enables management to allocate resources according to the priority of the programmes.
- It ensures that every programme undertaken by managers is essential for the organisation and is being performed in the best possible way.
- It enables the management to approve departmental budgets based on cost-benefit analysis. No arbitrary cuts or increase in budget estimates are made.
- It links budgets with corporate objectives. Nothing will be allowed simply because it was being done in the past. An activity may be shelved if it does not help in achieving the goals of the enterprise.
- It helps identify areas of wasteful expenditure and, if desired, it can also be used to suggest alternative courses of action.
- It facilitates the introduction and implementation of the system of 'management by objectives'. Thus it can be used not only for the fulfillment of the objectives of traditional budgeting but also for a variety of other purposes.

It is contended that zero-base budgeting is time-consuming. Of course, it is true, but it happens only in the initial stages when decision units have to be identified and decision packages have to be developed or completed. Once this is done and the methodology is clear, zero base budgeting is likely to take less time than traditional budgeting. In any case, until the organisation is properly acclimatised to the technique of zero base budgeting, it may be done so that all responsibility centers are covered at least once in three or four years.

Zero-base budgeting as a concept has become quite popular these days. The technique was first used by the U.S. Department of Agriculture in 1962. Texas Instruments, a multinational company, pioneered its use in the private sector. Today, a number of major companies such as Xerox, BASF, International Harvester and Easter Airlines in the United State are using the system.

Some departments of the Government of India have recently introduced zero-base budgeting intending to make the system of budgetary control more effective.

Activity 10.7

Discuss again with an official concerned with the budgetary control system in your organisation in the light of new developments that have taken place in the field of budgeting. Has your organisation adopted any of the features of the new developments of innovations, such as Performance Budgeting, Zero Base Budgeting, etc.? List some of the important steps taken in the recent past.

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10.9 SUMMARY

Financial planning is of utmost significance to management since finance is regarded as the lifeblood of business. A budget is a quantitative expression, usually in financial terms, of the future plans of an organisation. It includes projections regarding the levels of activity, expenses and revenues. A budget is an essential tool of financial planning. It helps in uncovering inefficiencies in operations, in minimising wasteful expenditure and in bringing out weaknesses in the organisation structure.

The responsibility for preparing the budget rests on the Budget Controller, who is assisted in his work by a Budget Committee. The Budget Committee may consist of heads of various departments, viz., Sales, Production, Personnel, Purchase, and Finance etc. Each head of the department is made responsible for preparing and executing the budget of his department. In a business organisation, the preparation of any budget is preceded by a sales forecast. A production budget is prepared after considering the forecasts embodied in the sales budget and the available productive capacity etc. The production budget includes the preparation of various cost budgets associated with the production process. Budgets pertaining to different functions or units are then combined and coordinated into one Master Budget.

The budget may be revised from time to time if the changed conditions or new developments so warrant. A budget may be fixed or flexible. A fixed budget is based on fixed volume of activity. If actual capacity utilisation is likely to vary from period to period, flexible budgets are more desirable. A flexible budget is thus prepared for changing levels of activity. It considers fixed and variable costs separately and is therefore more useful to a business where the level of activity cannot be exactly predicted.

In a budgetary control system, control ratios may be computed and used to compare the actual performance with the budgeted performance. These ratios are activity ratio, capacity ratio and efficiency ratio. In case the ratio is a hundred percent or more, it is considered favourable. If it is less than a hundred percent, it is taken as unfavourable.

The traditional budgeting technique takes the current level of operations as the basis for estimating the future level of operations slowly going out of date. It is increasingly realised that the traditional technique has serious shortcomings in view of the constantly changing conditions of today. The management is expected to review and re-evaluate the tasks because of the increasing pressures of the environment. The concept of `zero base budgeting' is considered a suitable alternative to replacing the traditional method.' 'Zero-base Budgeting' technique suggests that an organisation should not only make decisions about the proposed new programmes but should also, from time to time, review the appropriateness of the existing

programmes. Nothing is allowed simply because it was being allowed in the past. Each programme, whether new or existing, has to be justified in its entirety each time a new budget is formulated.

The concept of 'Zero base Budgeting' has been accepted for adoption in the departments of the Central Government and some State Governments.

10.10 KEYWORDS

Budget: A statement in financial terms, prepared prior to a defined period of time, showing the strategy to be pursued during that period to attain a given objective.

Budgeting: Art of building budgets.

Budgetary Control: The establishment of budgets relating to the responsibilities of executives to the requirements of a policy, and the continuous comparison of actual with budgeted results, either to secure by individual action the objective of that policy or to provide a basis for its revision.

Budget Manual: A document that sets out, inter alia, the responsibilities of the persons engaged in the routine and the forms and records required for budgetary control.

Master Budget: Summary budget, incorporating all component functional budgets, which are finally approved, adopted and employed.

Fixed Budget: A budget designed to remain unchanged irrespective of the level of activity attained.

Flexible Budget: A budget designed to change in accordance with the level of activity attained.

Performance Budget: A budget, which specifies the outputs or results to be achieved along with the inputs or expenditure to be incurred during the budget period.

Zero Based Budgeting: An operating planning and budgeting process which required each manager to justify his entire budget in detail from scratch.

Decision Unit: A significant programme, individual department or unit or level of an organisation that can be analysed from the stand point of decisions and funding.

Decision Package: A programme with goals, activities, and resources along with a document that identifies and describes the programme in terms of its (i) goals, (ii) activities by means of which goals are to be achieved, (iii) benefits to be expected (iv) alternatives to the programme, (v) consequences of not approving the programme and, (vi) financial and workforce resources required.

10.11 SELF-ASSESSMENT QUESTIONS /EXERCISES

a) What do you understand by 'Budgeting'? Mention the types of budgets that the management of a big industrial concern would typically prepare.

b) What is Budget? What is sought to be achieved by Budgetary Control?

c) What is the significance of 'Budgetary Control' in modern business?

d) Outline a plan for Sales Budget and Purchase Budget. What considerations are necessary in the preparation of such budgets?

e) Distinguish between Master Budget and Financial Budget. How does management make use of Master Budget

f) What is a `Flexible Budget' and how it is different from 'Fixed Budget'?

g) Explain the methods of forecasting cash requirements.

h) State whether each of the following statements is True or False

a)	There is no difference between a forecast and a budget	☐ True ☐
b)	A fixed budget is concerned with budgeting of fixed assets	☐ True ☐
c)	Sales budget is the most important budget among all budgets	☐ True ☐
d)	A 'fixed budget' is preferable to 'flexible budget'	☐ True ☐
e)	The principal budget factor constitutes the starting point for the preparation of various budgets.	☐ True ☐
f)	A budget manual contains a summary of all functional Budgets	☐ True ☐
g)	A fixed budget is one which is designed to remain unchanged irrespective of level of activity actually attained	☐ True ☐
h)	The first step in preparing the budget is determining the cost of goods sold.	☐ True ☐
i)	A flexible budget is necessary for a business enterprise whose demand of goods is stable	☐ True ☐

i) Fill in the blanks:

a) A system by which budgets are used as a means of planning and controlling all aspects of a business……..

b) Is a budget designed to furnish budgeted costs for any level of activity actually attained?

c) Is a summary of all functional budgets in a capsule form?

d) Budgetary control helps management to.....

e) Budget is an expression of a business plan in financial terms ……

f) …… shows the anticipated sources and utilisation of cash.

g) ……. determines the priorities of functional budgets.

h) A document that sets out the responsibilities of the persons engaged in theroutineofandtheformsandrecordsrequiredforbudgetarycontroliscalled……..

i) Cash budget is a …….. Budget.

j) ……isabudgetwhichstatesthe‘additionalworkerstobeengaged in the factory.

k) A budget which consolidates the organisation's overall plan is called……..

l) Capacity Ratio x Efficiency Rate=……..

m) It is essential to determine the proper …… and to have well defined ……

j) Choose the correct answer:

i. Sales budget is a:

(a) functional budget, (b) master budget, (c) expenditure budget.

ii. In the case of plants the limiting factor may be :

(a) insufficient capacity, (b) shortage of experienced salesmen, (c) general shortage of power.

iii. The difference between fixed and variable cost has a special significance in the preparations of:

(a) flexible budget, (b) master budget, (c) cash budget.

iv. The budget that is prepared first of all is:

(a) cash budget, (b) master budget, and (c) budget for the key factor.

v. In the case of materials, the key factor may be:

(a) insufficient advertising, (b) restrictions imposed by quota, (c) low market demand

vi. The budget, which commonly takes the form of budgeted Profit and Loss Account and Balance Sheet, is:

a) cash budget, (b) master budget, and (c) flexible budget.

k) Prepare a materials budget of Bihar Udyog Ltd, based on the following information. The production orders of the products show the following consumption

i) Consumption for a batch of 1,000 units of

Material No.	Rate per kg.	Product Pkg	Product Qkg
1	Rs.60	50	80
2	60	10	5
3	10	-	30
4	50	6	10
5	25	4	4

Total	70	129

ii) Production (units)

Product P	12,000units
ProductQ	11,000units

l) Draw a Material Procurement Budget (Quantitative) from the following information:

The estimated sale of a product is 20,000 units. Each unit of the product requires 3 units of material X and 5 units of Material Y.

Estimated opening balance at the commencement of the next year:

Finished Product	2,500 kgs.
Material X	6,000 units
Material Y	10,000 units
Material on order:	
Material X	3,500 units
Material Y	5,500 units
The desirable closing balances at the end of the next year:	
Finished Product	3,500 units
Material X	7,500 units
Material Y	12,500 units
Material on order:	
Material X	4,000 units
Material Y	5,000 units

Q13. Kashmir Valley Ltd. has submitted the following information:

2002	**Sales**	**Purchase**	**Wages**	**Other Expenses**
January	40,000	20,000	7,500	2,000
February	50,000	30,000	10,000	2,500
March	60,000	40,000	12,000	3,0'00
April	70,000	40,000	12,500	2,000
May	50,000	30,000	12,000	2,500
June	30,000	20,000	7,500	2,250
July	35,000	15,000	9,000	2,750
August	40,000	15,000	9,000	2,500
September	30,000	20,000	8,000	2,000
October	50,000	25,000	11,000	3,000
November	60,000	30,000	12,000	3,500

December	65,000	35,000	12,500	4,250

The company is engaged in the manufacture of furniture. It recently purchased machinery worth Rs. 50,000 on 1st April, 2003 on deferred payment basis with interest at 12% per annum with the stipulation that the principal is repayable in four equal quarterly installments beginning from April, 2003 and thereafter interest to be paid as at the end of each quarter, i.e. in July, October and January. The company has been carrying deposits of Rs. 50,000 at 16% interest, payable on the last day of June every year.

About 40% sales are made on cash basis. A credit period of two months is allowed for sales on credit. Closing cash balance as on 31st March 2003 is projected at Rs. 5,250.

A cash discount of 5 % is available if creditors are paid within one month, but not later. The company has been advised by its consultant to maintain a minimum cash balance of Rs. 2,500 for day-to-day cash requirements.

As the Financial Controller of Kashmir Valley Ltd., please prepare a cash budget for the quarter from April to June 2003.

a) Production cost of a factory for a year is as follows:

Direct Wages	Rs. 80,000
Direct Materials	1,20,000
Production overheads, fixed	40,000
Production overheads, variable	60,000

During the forthcoming year, it is anticipated that:

1) Averageratefordirectlabourremunerationwillfallfrom Rs.3perhourto Rs.2.50 per hour;
2) Production efficiency will remain unchanged; and
3) Direct labour hours will increase by 33 1/3%

The purchase price per unit of direct materials and of the other materials and services which comprise overheads will remain unchanged.

Draw up a budget and compute a factory overhead rate, the overheads being absorbed on a direct wage basis.

b) ABC Co. wishes to arrange overdraft facilities with its bankers during the period April to June when it will be manufacturing mostly for stock. Prepare a Cash Budget including the extent of bank facilities the company will require at the end of each month for the above period from the following data.

a)	Sales	Purchases	Wages

February	1,80,000	1,24,800	12,000
March	1,92,000	1,44,000	14,000
April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,25,000	2,68,000	15,000

15. 50 per cent of credit sales is realised in the month following the sale and the remaining 50 per cent in the following second month. Creditors are paid in the month following the month of purchase.

c) Cash at bank on the 1st April (estimated) is Rs.25,000.

16) Jammu Manufacturing Company Ltd. is to start production on 1st January 2004. The Prime cost of a unit is expected to be Rs. 400 out of which Rs. 160 is for materials and Rs.240 for labour. In addition, variable expenses per unit are expected to be Rs. 80 and fixed expenses per month Rs.3,00,000. Payment for materials is to be made in the month following the purchase. One third of sales will be for cash and the rest on credit for settlement in the following month. Expenses are payable in the month in which they are incurred. The selling price is fixed at Rs.800 per unit. The number of units manufactured and sold are expected to be asunder:

January	9,000	April	20,000
February	12,000	May	21,000
March	18,000	June	24,000

Draw a cash budget showing requirements of cash from month to month.

17) The Sudershan Chemicals Ltd., operates a system of flexible budgetary control. A flexible budget is required to show levels of activity at 70%, 80% and 90% the following is a summary of the relevant information:

- Sales based on normal level of activity of 70 % (3,50,000) units at Rs. 200 each. If output is increased to 80% and 90% , selling prices are to be reduced by 2.5 % and 5 % of the original selling price, respectively, to reach a wider market.
- Variable costs are Rs. 100 per unit (70 % is the cost of raw material). In case output reaches 80 % level of activity or above the effective purchase of raw material will be reduced by 5%
- Variable overheads: Salesman's commission is 2 % of sale value.
- Semi-variable overheads (total) at 3,50,000 units are Rs. 1,20,00,000. They are expected to increase by 5 % if output reaches a level of activity of 80 % and by a further 10% if it reaches the 90 % level.
- Total fixed overheads are Rs. 2,00,000 which is likely to remain unchanged up to 100%capacity.

18) Calculate: (a) Efficiency Ratio (b) Activity Ratio (c) Capacity Ratio from

the following figures:

Budgeted production	880 units
Standard hours per unit	10
Actual production	750 units
Actual working hours	6,000

Answers to Self-assessment Exercises

8 (a) F, (b) F, (c) T, (d) F, (e) T, (f) F, (g) T, (h) F, (i)F.

9. a) is called budgetary control

a) Flexible Budget

b) Master Budget

c) plan and control

d) for some specific future period

e) Cash budget

f) Principal budget factor

g) is termed Budget Manual

h) Short-term

i) Labour Procurement Budget

j) Master Budget

k) Activity Ratio

m) Budget Period, Responsibility Centre.

10. (i) a; (ii) a; (iii) a; (iv)c; (v) b; (vi) b;

Material No	1	2	3	4	5
Qty. (Kg.)	1,480	175	330	182	92
Amount (Rs.)	88,800	10,500	3,300	9,100	2,300

12) Units to be procured X: 65,000; Y:1,07,000

13) Closing balance April May June

Rs.2,250 Rs. 2,500 Rs. 2,500

14) Cost of production Rs. 3,08,889, Production overhead rate 112.5 %.

15) Closing balance April May June

(Overdraft) (Rs.56,000) (47,000) (1,67,000)

17) Budgeted Profit: 70 % :Rs. 214 lakhs. 80 % :Rs. 250.4 lakhs, 90 % :

Rs.269.65 lakhs.

18) (a) 125%; (b) 85.23%; (c) 68.18%.

10.12 FURTHERREADINGS

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AUDIO/VIDEO PROGRAMME

Audio

Emerging Horizons in Accounting & Finance - Part I: *Zero Base Budgeting*

Video

Management Control Systems: Part I & II

UNIT 11 VARIANCE ANALYSIS

Objectives

This unit aims at:

- acquainting you with the ways in which the management can monitor and guide the operations of a business to meet the desired goals, particularly in respect of costs and sales.
- helping you in identifying the factors responsible for deviation of actual performance from the standard performance and in taking such remedial measures as may be necessary.

Structure

11.1 Introduction

11.2 Meaning of Variance

11.3 Cost Variances

11.4 Direct Material Variances

11.5 Direct Labour Variances

11.6 Overhead Variances

11.7 Sales Variances

11.8 Control of Variances

11.9 Variance Reporting

11.10 Summary

11.11 Key-Words

11.12 Self-assessment Questions/Exercises

11.13 Further Readings

11.1 INTRODUCTION

Profit-making is the prime objective of business enterprise. Profit depends basically on two factors- Costs and Sales. In order to achieve better performance, it is necessary that you lay down your targets in respect of both of them. Your objective should be to maximise the sales and minimise the costs. This will result in maximisation of the profits and, in the long run the wealth of the firm.

Variance analysis is intimately connected with budgetary control, which helps the management in:

- planning future activities
- comparing actual performance with the budgeted performance
- identifying the variances as to their causes
- ensuring that remedial measures are taken at an appropriate time.

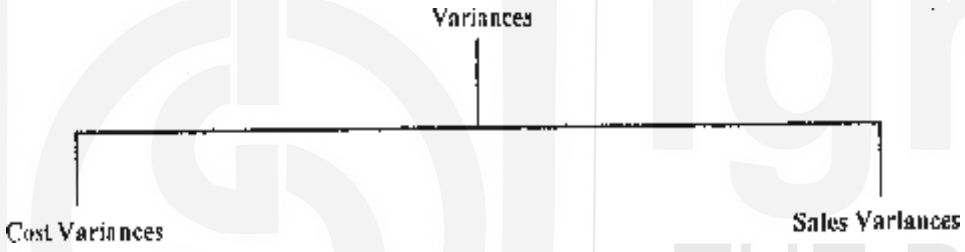
11.2 MEANING OF VARIANCE

Variance is the difference between budgeted and the actual level of activity. Since, as explained earlier, the profitability of a business depends both on costs and sales, it is important to analyse both cost and sales variance.

Cost variance is the difference between ‘what should have been the cost' (popularly termed as standard cost) and ‘what has been the cost’ (i.e. actual cost). If the actual costs are less than the standard cost, the variance is termed as ‘favourable'. However, if the actual cost is more than the standard costs, variance is termed as‘adverse' or ‘unfavourable'.

Sales variance is the difference between `what should have been the sales' (popularly) termed as Budgeted sales) and `what have been the sales ` (i.e. the actual sales). If the actual sales amount is more than the budgeted sales, the variance is termed as 'favourable'. However, if the actual sales amount is less than the budgeted sales, the variance is termed as ‘adverse' or ‘unfavourable'.

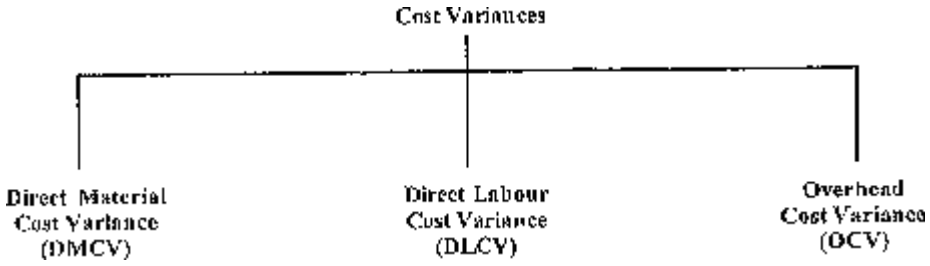
Thus, variances may be classified into two categories:



In the following sections, we will explain both the above types of variances in detail.

11.2 COST VARIANCES

Cost variances can be put in the following chart:



Direct expenses constitute an insignificant portion of the total cost of the product. Hence, direct expense variance is generally not calculated. Suppose it is desired to calculate the direct expense variance. In that case, it can be computed in the same way as the variable overhead variance is calculated, since in most cases direct expenses are variable.

At this point, however, we suggest that you have a look at Exhibit -11.1, given towards the end of this unit, which presents a bird’s eye view of all the

variances discussed in this unit and their inter-relationships. Whenever you are in doubt, a reference to this Exhibit may prove helpful.

In the course of the discussion in this unit, you will find that abbreviations for different variances have been used. For your facility, we present below a list of all such abbreviations together with the full names of the variances.

Abbreviations for Different Variances

DMCV	-	Direct Material Cost Variance
DMPV	-	Direct Material Price Variance
DLCV	-	Direct Labour Cost Variance
DLRV	-	Direct Labour Rate Variance
DLEV	-	Direct Labour Efficiency
Variance OCV	-	Overhead Cost Variance
VOCV	-	Variable Overhead Cost Variance
FOCV	-	Fixed Overhead Cost Variance
FOEXPV	-	Fixed Overhead Expenditure Variance
FOVV	-	Fixed Overhead Volume Variance
SVV	-	Sales Value Variance
SPV	-	Sales Price Variance
SVOLV	-	Sales Volume Variance

11.3 DIRECT MATERIAL VARIANCES

Three types of direct material variances are explained here. The first one is Direct Material Cost Variance (DMCV) which is equal to the difference between the standard cost of direct materials specified for the output achieved and the actual cost of direct materials used. The standard cost of materials is computed by multiplying the standard price with the standard quantity for actual output, and the actual cost is computed by multiplying the actual price with the actual quantity.

Formula for Computation:

Direct Material		Total Standard
Cost Variance	=	Cost for Total Actual Cost
(DMCV)	=	Actual Output

(Standard Price × Std. Qty. for Actual Output) − (Actual Price × Actual Quantity)

If the actual cost is more than the standard cost, it will result in an adverse variance and *vice-versa.* Let us take an example.

Standard output	800 units
Actual output	1,000 units
Std. qty.per unit	1 kg
Total actual qty.used	1,200 kg.
Std. rate per unit	Rs.4 per kg
Actual rate per unit	Rs. 5 per kg.

DMCV= Standard Cost for actual output Actual Cost

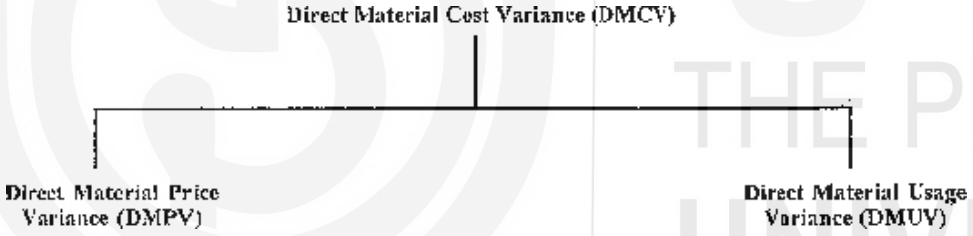
= $1,000 \times 1 \times 4 - 1,200 \times 5$

= Rs. 4,000 - Rs.6,000

= Rs. 2,000(Adverse)

If standard output and actual output are different, as in this case, the variances are to be calculated keeping in view the actual output. The information regarding standard output (which is different from standard quantity) is thus not relevant.

The material cost variance may arise either on account of change in price, quantity, or both. Thus, material cost variance may be further analysed as 'material price variance' and 'material usage variance'



Direct Material Price Variance

DMPV is concerned with that portion of the direct material cost variance which is due to the difference between the standard price specified and the actual price paid.

Formula for computation

$$\text{Direct Material Price Variance (DMPV)} = \text{Actual Quantity} \times \left[\text{Standard Price} - \text{Actual Price}\right]$$

If the actual price is more than the standard price, the variance would be adverse, and in case the standard price is more than the actual price, it would result **in** a favourable variance.

The material price variance, based on figures given in the above example, will be computed as follows:

DMPV = $1,200 \times (4 - 5)$

= Rs. 1,200 (Adverse)

The reasons for price variance may be asunder:

- Fluctuations in market prices:
- Market trends may be bullish or bearish.
- Increase or decrease in prices on account of agreement between various suppliers or on account of Government intervention
- Buying efficiency or inefficiency
- High or low costs of transportation and carriage of goods.
- Changes in or laxity in pursuing purchase policy:
- Superior or inferior (non-standard) material might have been purchased;
- Purchases might have been effected in small quantities instead of in bulk or *vice versa;*
- Substitute and cheaper materials might have been used.
- Emergency purchase- placing rush orders for immediate delivery at the prevalent price.
- Fraud in purchases and loss of discounts.
- Incorrect: setting of standards.

Some of the facts may be controlled by the management if care or proper control is exercised, while others may be beyond the control of management. If the factors are controllable, the buying department is usually answerable for unfavourable variations.

Direct Material Usage or Quantity Variance

DMUV is that portion of direct material cost variance which is due to the difference between the standard quantity specified (for the output achieved) and the actual quantity used.

Formula for computation

Direct Material Usage Variance (DMUV) = (Standard Quantity for actual output – Actual Quantity) × Standard Rate

The actual quantity, if more than the standard quantity, would cause an unfavourable variance and *vice-versa.*

The usage variance will be computed as follows based on figures given in the above example.

DMUV = 4 × (1,000-1,200)

= Rs. 800(Adverse)

The total of material price and quantity variances is equal to material cost variance.

Thus, DMCV = DMPV + DMUV

= Rs.1200 (A) +800(A)

= Rs. 2,000(A)

The reason for direct material usage variance may be as under:

1. Inefficiency, lack of skill or faulty workmanship resulting in more consumption of raw materials.
2. Lack of proper upkeep and maintenance of plant and equipment, and frequent breakdown during production process leading to wastage of material
3. Non-consideration of product design and method of processing, etc. while fixing standards.
4. Incorrect processing of materials resulting in wastages.
5. Non-recording of returns of material to stock (or stores) or inter-transfers from one job to another.
6. Improper inspection and supervision of workmen resulting in adverse quantity variance due to careless handling and processing.
7. Too strict supervision or inspection resulting in excessive rejections of materials.
8. Substitution of specified materials with unspecified materials causing greater consumption of the latter. Price variance could be favourable because unspecified material is likely to be cheaper.
9. Incorrect setting of standards, leading to variations.
10. Excessive wastage, scrap, Spoilage, Shrinkage, leakage, etc. causing an adverse usage variance.

Computation of Various Direct Material Variances Illustration 11.1

Form the following particulars; let us find the (i) Material Cost Variance, (ii) Material Usage Variance, (iii) Material Price Variance.

Quantity of material purchased	4,000 units
Value of material purchased	Rs.10,000
Standard quantity of materials per unit of finished product	2 kg
Standard rate of material	Rs.2 per kg
Opening stock of material	1,000kg
Closing stock of material	2,000kg
Finished products during the period	1;000units

Standard Quantity of materials required : 1,000 x 2 = 2,000kg.

Actual Qty. of Material used = Material purchased + Opening Stock -

Closing Stock

=4,000+1,000-2,000 = 3,000kg.

Standard Price = Rs. 2 per unit.

Actual Price = $\frac{\text{Rs.10,000}}{\text{4,000 units}}$ = Rs.2.50 per unit.

i) DMCV = Total Standard Cost–Total Actual Cost

$$\left[\begin{matrix}\text{Standard}\\\text{Price}\end{matrix} \times \begin{matrix}\text{Standard}\\\text{Quantity}\end{matrix}\right] - \left[\begin{matrix}\text{Actual}\\\text{Price}\end{matrix} \times \begin{matrix}\text{Actual}\\\text{Quantity}\end{matrix}\right]$$

$$= (2 \times 2{,}000) - (2 \times 1{,}000 + 2.50 \times 2{,}000)$$

= Rs. 4,000 – Rs.7,000 = Rs.3,000 (Adverse)

*Presuming FIFO Method

1) DMUV = Standard Price (Standard Quantity - Actual Quantity)

= Rs. 2 × (2,000 - 3,000)

= Rs. 2 × (-1,000) = Rs. 2,000 (Adverse)

2) DMPV = Actual Quantity x (Standard Price - Actual Price)

= 1,000 × (2 - 2) + 2,000 × (2 - 2.50) = Rs. 1,000(Adverse)

It will be observed that the total of materials usage and material price variance is equal to material cost variance.

Activity 11.1

Calculate (i) material usage variance, (ii) material price variance, and (iii) material cost variance in respect of a manufacturing concern that has adopted standard costing. The firm furnishes the following information.

Standard data

Material for 100kg.of finished products (140 kg),

Price of materials Rs. 4 per kg

Actual data

Output	60,000 kg
Material used	80,000 kg
Cost of material	Rs. 2,60,000

11.5 DIRECT LABOUR VARIANCES

The deviations in cost of direct labour may occur because of two main factors: (1) difference in actual rates and standard rates of labour, and (ii) the variation in actual time taken by workers and the standard item prescribed for performing a job or an operation.

Labour variances are very much similar to material variances and they can be very easily calculated by applying the same techniques as used in calculating material variances. (The readers can work out the various formulae for Direct Labour Variances by simply putting the word 'time' in place of `qty'. in the formula meant for Direct Material Variances.) The various labour variances may be put asunder.

It is the difference between the standard direct wages specified for the activity achieved and the actual direct wages paid. The formula for computation:

$$\text{Direct Labour Cost Variance} = \text{Standard Cost for Actual output} - \text{Actual Cost}$$

OR

$$\text{DLCV} = \left[\text{Standard Rate} \times \text{Std. Time for actual output}\right] - \left[\text{Actual Rate} \times \text{Actual Time}\right]$$

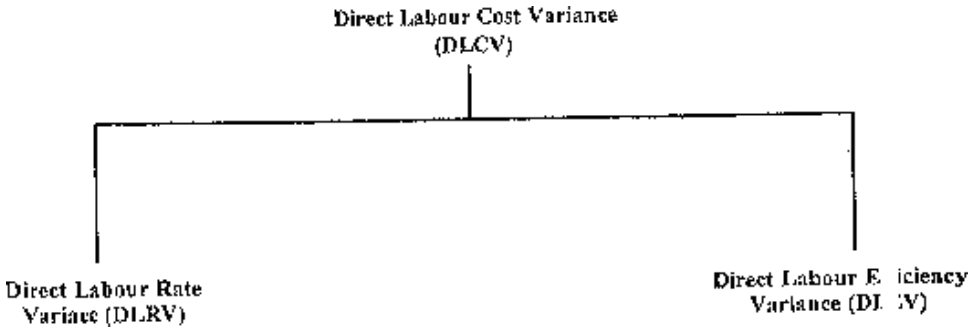
Illustration 11.2

Standard output	200 units
Standard time per unit	2 hours
Standard rate per hour	Rs. 3
Actual output	160 units
Total actual time taken	300 hours
Actual rate per hour	Rs.3.50

DLCV = Rs. 3 x 160 x 2 - Rs. 3.50 x 300

= Rs. 960 - 1,050 = Rs. 90 (Adverse)

The direct labour cost variance may arise on account of differences in either rate of wages or time. Thus, it may be further analysed as (i) Rate variance, and (ii) Time or Efficiency variance. This has been shown in the chart below:



Direct Labour (Wages) Rate Variance

It is that portion of direct labour (wages) variance which is due to the difference between the standard or specified rate of pay and the actual rate

paid. Formula for computation:

Direct Labour Rate = Actual time × (Standard Rate - Actual Rate)

Variance (DLRV)

If the actual rate is higher than the standard rate, it shall result in an unfavourable variance and vice-versa.

Based on the figures given in the above illustration, the direct labour rate variance will be computed as follows:

DLRV = 300hrs x (Rs. 3 - Rs. 3.50)

= Rs.150 (Adverse)

The reasons for direct labour rate variance may be as under:

- Deployment of more efficient and skilled workers giving rise to higher payment.
- Higher payment due to shortage of availability of labour.
- Lesser payment due to abundant availability of labour or high competition among them for employment.
- Employment of unskilled labourers causing lower actual rates of pay.
- Extra-Shift allowance to workers or overtime allowance (for work done after normal hours) leading to higher wages.
- Higher piece rates for better quality production
- Change in the system of wage payment (from time wages to piece wages or vice versa, introduction or withdrawal or incentive or bonus schemes etc.
- Change in wage rates, probably due to a revised agreement with labour union
- Higher rates during seasonal or emergency operations

Direct Labour Efficiency (Time) Variance

It is that portion of the direct labour variance which is due to the difference between the standard labour hours specified for the activity achieved and the actual. Labour hours expended.

Formula for computation

Labour Efficiency = Standard Rates × Standard time– Actual time

Variance (for actual output)

Based on the figures given in Illustration 11.2, the labour efficiency variance will be computed as follows:

Labour Efficiency Variance = Rs. 3 × (320 hrs -300 hrs) = Rs.60 (Favourable)

It will be seen that the work has been finished in 150 hours, compared to 160

hours- the standard time set for the production. This could be attributed to the efficiency of workers. That is why this variance is known as Labour Efficiency Variance. The sum of labour rate and efficiency variance is equal to labour cost variance.

Verification

DLCV = Labour Rate Variance + Labour Efficiency Variance

= Rs. 150'(A) + 60 (F)

= Rs. 90 (Adverse)

Labour efficiency variance may be caused by the following:

i) Defective or bad materials

ii) Breakdown of plant and machinery

iii) Failure of power

iv) Efficient working by the labourers and fuller utilisation of time due to incentives given.

v) Loss of time due to delayed instructions from management or delay in receipt of raw materials.

vi) Alteration in the method of production.

vii) More time taken by workers due to lack of proper supervision and control by management, making the workers lazy and inefficient.

viii) Too rigid a system of inspection and control.

ix) Poor working conditions

x) Lower productivity due to lack of training, ability or experience on the part of workers

xi) Labour turnover or change -over of workers from one operation or process department to another.

Computation of Labour Variances

Illustration 11.3

Form the following details calculate the direct labour variances:

Direct Labour Rate	:	Re. 1 per hour
Hours set per unit	:	10 hours
Actual data are given below:		
Units produced	:	500
Hours worked	:	6,000
Actual Direct Labour Cost	:	4,800

Let us work out the various labour variances.

Standard Time = 10 hours × 500 units = 5,000

hours Standard Cost = Standard Rate x Standard Time

= Re.1×5,000 hours =Rs.5,000

i) Direct Labour Cost Variance (DLCV) = Standard Cost - Actual Cost

= Rs.5,000 - Rs.4,800 = **Rs.** 200(F)

ii) Direct Labour Rate Variance (DLRC) = Actual Time X (Standard Rate –Actual Rate)

$$\text{Actual Rate} = \frac{\text{Actual Cost}}{\text{Actual hours worked}}$$

$$= \frac{\text{Rs. 4,8000}}{6{,}000} = 80 \text{ paise per hour.}$$

Hence, Labour Rate Variance = 6,000 hours × (Rs. 1.80 p.)

= Rs. 1,200 (F)

iii) Direct Labour Efficiency = Standard Rate (Standard Time – Actual Time) Variance(DLEV).

= Re.1 x (5,000 - 6,000 hours)

= 1,000 (Adverse)

Verification

DLCV = DLRV +DLEV

= Rs. 1,200 (F) + Rs. 1,000(A)

= Rs. 200(Favourable)

Activity 11.2

Calculate labour variances for Travancore Supply Company which produces a single article. The product goes through two operating departments. The standard costs card for this article indicated the following data:

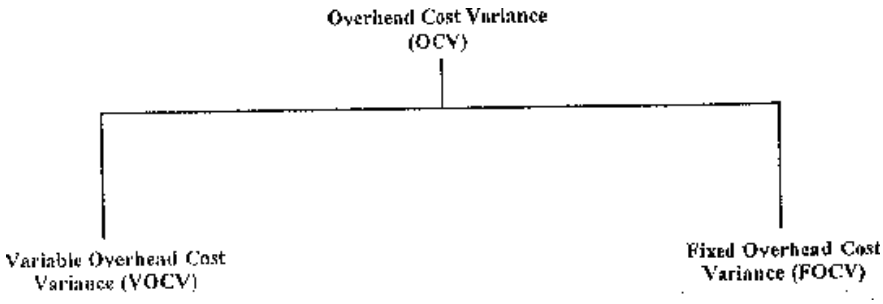
	Standard time	**Standard rate**	**Total**
Department **A**	2hours	Rs.5	Rs.10
Department **B**	1.5 hours	Rs.6.00	Rs.9

The production for July was 2,000 units. The actual labour costs in the two departments were:

	Hours	**Cost**
Department **A**	4,000	Rs. 24,000
Department **B**	2,000	Rs. 15,000

11.6 OVERHEAD VARIANCES

The term overhead includes indirect material, indirect labour and indirect expenses. Overheads may relate to factory, office, or selling and distribution departments. However, for the purposes of variance analysis, we can broadly divide the overhead cost variance into two categories as shown below:



Each of these variances is discussed below:

Overhead Cost Variance (OCV)

It is the difference between the standard overheads for actual output (i.e. recovered overheads) and actual overheads. It is the total of both fixed and variable overhead variances.

Overhead Cost variance = Recovered Overheads - Actual Overheads

Variable Overhead Cost Variance(VOCV)

It is the difference between standard variable overheads for actual output (or recovered variable overheads) and actual variable overheads.

VOCV = Recovered Variable Overheads - Actual Variable Overheads.

Causes of variance: This variance may be due to advance payment of expenses, or

outstanding expenses or payment of past outstanding expenses during this period, or on account of certain abnormal expenses incurred such as, repairs of machinery due to breakdown, expenses clue to spoilage or defective workmanship or excessive overtime work, etc.

Fixed Overhead Cost Variance (FOCV)

It is the difference between standard fixed overheads for actual output (or Recovered Overheads) and actual fixed overheads.

FOCV = Recovered Fixed Overheads - Actual Fixed Overheads

Causes of variance : Difference between actual and recovered. fixed overheads maybe on account. (i) a higher or lower amount of fixed overheads, compared to budgeted fixed overheads, might have been incurred for the same production during the same period (ii) the same amount of fixed

overheads might have been incurred for a high or lower production than the budgeted production during the same period.

Computation of Overhead Variances Illustration

Budgeted Output	10,000 units
Budgeted Overheads	Rs. 10,000
Fixed	6,000
Variable	4,000
Actual Overheads	12,000
Fixed	6,000
Variable	6,000
Actual output	8,000 units

Let us calculate the various overhead variances.

It will be appropriate to make the following basic calculations before computing the various Overhead Variances.

Standard/Budgeted Overhead = Budgeted Overheads

Rate per Unit Budgeted Output

Rs. 10,000 = Re.1

= 10,000

Standard/Budgeted Fixed = Budgeted Fixed Overheads
Overhead Rate per Unit Budgeted Output

= Rs.6,000 = Rs. 60
10,000

Standard/Budgeted Variable = Budgeted Variable Overheads

Overhead Rate per unit Budged Output

= Rs. 4,000 = Re.0.40
10,000

Various Overhead Variances can now be calculated

OCV = Recovered Overheads - Actual Overheads

= Rs. 1 x 8,000 -12,000 = 4,000 (Adverse)

VOCV = Recovered Variable Overheads -Actual Variable Overheads

= 8,000 x Re. 0,40 - Rs. 6,000

= 3,200 = 6,000

= 2,800 (Adverse)

FOCV = Recovered Fixed Overheads Actual Fixed Overheads

= 8,000 x Re. 0.60 - Rs. 6,000

82 = Rs. 4,800 - Rs. 6,000 = Rs. 1,200 (Adverse)

Verification

OVC = VOCV +FOCV

4,000 (A) = 2,800 (A) + 1,200 (A)

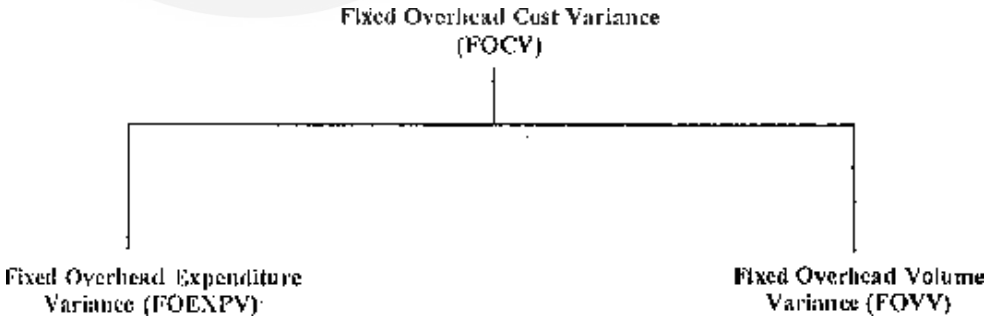
Activity 11.3

Calculate different overhead variances from the following standard and actual data:

Standard Overhead rate:	Per unit	
Variable	Rs.3.00	
Fixed (Rs. 36,000 / 3,000)	Rs. 12.00	
	Rs. 15.00	
Actual data during the period:		
Output	2,400 units	
Overhead:		
Variable	Rs. 6,000	
Fixed	Rs.28,000	Rs. 34,000

Classification of Fixed Overhead Variance

Fixed Overhead Variance may be classified as shown in the following chart:



Fixed Overhead Expenditure or Budget or Controllable Variance (FOEXPV)

This variance is due to the difference between Budgeted Fixed Overheads and the Actual Fixed Overheads incurred.

FOEXPV = Budgeted Fixed Overheads-Actual Fixed Overheads

Fixed Overhead Volume Variance (FOVV)

This variance arises because of the difference between standard and actual output resulting in under and over-recovery of fixed overheads. It is, therefore, the difference between overheads absorbed on actual output (or recovered overheads) and those on budgeted output (or budgeted overheads).

FOVV = Recovered Fixed Overheads Budgeted Fixed Overheads.

Illustration 11.5

Calculate the Fixed Overhead Expenditure Variance and Fixed Overhead Volume Variance based on data given in Illustration 11.3.

FOEXPV	=	Budgeted Fixed Overheads -Actual Fixed Overheads
	=	Rs. 6,000 - Rs. 6,000 =Nil
FOVV	=	Recovered Fixed Overheads - Budgeted Fixed Overheads
	=	Rs. 4,800 - Rs 6,000 = Rs. 1,200(Adverse)

Verification

FOCV	=	FOEXPV +FOVV
		1,200 (A) = Nil + 1,200 (A)

Activity 11.4

Calculate the overhead variance with the following data:

Item	Budgeted	Actual
No. of working days in a month	20	2
Man hours per day	6,000	6,400
Output per man hour in units	1.0	9
Overhead cost (Rs.)	1,20,000	1,28,000

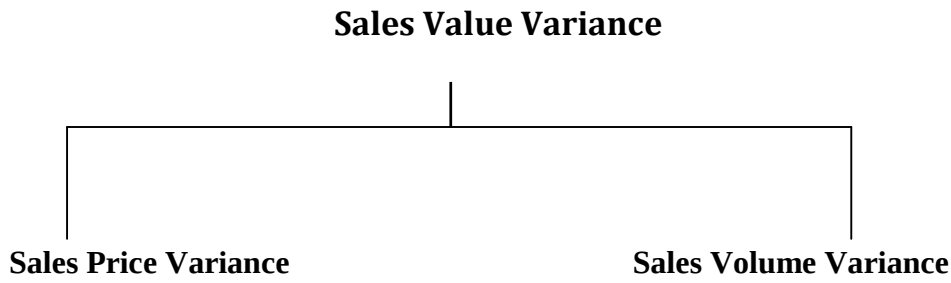
11.7 SALES VARIANCES

Sales are affected by two factors (i) the selling price and (ii) the quantum of sales. The variations in the standards set and actual for the purpose may be mainly due to change in market trends. Usually, if the selling price increases, the volume of sales will be lower than the standard. It may result in a favourable variance as to price or unfavourable variance as to quantity. It is to be borne in mind that higher price here is to be viewed as a favourable(higher price paid for the material, it will be recalled, causes an adverse variance) and lower volume of sales is to be viewed as unfavourable (in case of materials, it is the other way around, i.e. lower usage of materials than the standard causes a favourable variance).

It is well known that demand and supply position in the market decide the

quantity of sales and the selling price. The variations may be on account of control lab: as well as non-controllable factors. changes in market conditions and demand by customers¬ are, of course, beyond the control of management. However, certain factors like high prices are controllable, and an effort should be made to check adverse variations due to these factors.

Sales variances can be understood with the help of the following chart



Sales Value Variance

The difference between budgeted sales and actual sales results in Sales Value Variance. The Formula is:

Sales Value Variance = Budgeted Sales - Actual Sales

If actual sales are more than the budgeted sales, a favourable variance would ' *reported* and vice versa.

The difference in value may be on account of a difference in price or volume of sales which is therefore analysed further.

Sales Price Variance

It can be calculated like material price variance. It is on account of the difference in actual selling price and the standard selling price for actual quantity of sales. The formula is:

Actual quantities sold X(Standard Price - Actual Price)

OR

Price Variance = Standard Sales - Actual Sales

Sales Volume Variance

It can be calculated like material usage variance. Budgeted sales may be different from standard sales. In other words, budgeted quantity of sales at the standard price may vary from the actual quantity of sales at standard prices. Thus, the variance is a result of difference in budgeted and actual quantities of goods sold. The formula is:

Standard Price X (Budgeted Quantity - Actual Quantity)

OR

Volume Variance = Budgeted Sales- Standard Sales

If the standard sales are more than the budgeted sales, it would cause a favourable variance and vice versa?

The total of price and volume variances would be equal to sales value variance.

Computation of Sales Variances

Illustration 11.6

The budgeted and actual sales of a firm, manufacturing and marketing a sir product, are furnished below:

Budgeted sales	10,000 units at Rs. 6 per unit
Actual sales	5,000 units at Rs. 4 per unit.
	8,000 units at Rs. 5 per unit

Let us calculate : a) Sales price variance,
b) Sales volume variance, and
c) Sales value variance

a) Sales Price Variance = Standard Sales – Actual Sales

Standard Sales = Standard price × Actual Quantity
= Rs. 6 × 13,000
= Rs. 78,000

Actual Sales = Actual price × Actual quantity
= Rs. 4 × 5,000 + Rs. 5 × 8,000
= Rs. 20,000 + Rs. 40,000
= Rs. 60,000

F ice, Sales Price Variance = Rs. 78,000 – Rs. 60,000
= Rs. 18,000 (Adverse)

b) Sales volume variance = Budgeted sales – Standard sales
= Rs. 60,000 – Rs. 78,000
= Rs. 18,000 (Favourable)

c) Sales value variance = Budgeted Sales* – Actual Sales
= Rs. 60,000 – Rs. 60,000
= Rs. Nil

Verification

Sales value variance = Sales Price Variance + Sales Volume Variance

= 18,000 (A) + 18,000(F)

= Nil

*Budgeted Sales = Budgeted Price x Budgeted Quantity

11.8 CONTROL OFVARIANCES

After the variance have been computed and analysed, the next logical step for the management is to trace the responsibility for the variances to particular individuals or departments. The Management/Cost Accountant may be required to prepare the necessary report for this purpose. The report submitted to the management should clearly indicate where action is required. Based on this report, the management will try to identify the specific individuals for adverse controllable variances, which being within their control could have been avoided. It was earlier mentioned that certain factors, such as changes in market conditions, demand and supply position,

etc. are beyond the control of managers. Hence, action to pinpoint the responsibility of such uncontrollable variances is not called for.

In case of controllable variances, the responsibility could be traced as shown below to the different departments for different variances.

Variance	Department to be held responsible
Materials	
Price	Purchasing Department
Quantity or Grade	Stores, Purchase or Process Departmen as the case may be.
Waste, scrap or spoilage	Production Department (for lack of proper supervision)
Wages	
Rate — For difference in rates for work requiring higher rates of pay	Personnel Department Production Department
Time — lack of proper supervision	Production Department
Overheads	
Volume	Sales Department
Efficiency	Production Department
Expenditure:	
higher rates of indirect workers	Personnel Department
higher prices of indirect materials	Purchasing Department
higher consumption of indirect materials	Production Department
Excessive expenditure in factory	Production Department
Excessive expenditure for selling and distribution	Selling Department
Sales	
Price and Volume	Selling Department

It may be noted that variance analysis would not help in achieving the desired objective of minimising costs, unless managerial action is prompt and in the right direction. The direction, of course, shall be indicated by the analysis of variances, but it is the executive side which would be responsible for taking immediate action, exercising proper control, having a close watch over operations, etc., so that economies may be affected by inefficiencies minimised and performance improved. A continuous and rigorous effort in cost control would help the management achieve the goal of standard costing.

11.9 VARIANCEREPORTING

As stated above, the deviations along with their causes should be reported to the management regularly and at the opportune time so that corrective action may be taken immediately. The person or department may be held responsible for any adverse variations after duly accounting for it.

The information about the profit earned by the business is presented through

a simple Profit and Loss Account where a system of historical costing is prevalent. Its Proforma is given below:

Trading and Profit and Loss Account

For the Year ending

To Direct Materials	...	By Sales	….
"Variable Expenses	…		
"Fixed Expenses	…		
"Net Profit	…		

However, when a system of standard costing is in operation the information about the standards, the actual and the variances along with their causes should be depicted through a statement so that the management may be able to take quick action in respect of any inefficiencies thus revealed. The statement draws a reconciliation between the Budgeted Profit/Standard Profit and Actual Profit. The preparation of this statement can be understood with the help of the following

The profit statement, submitted to the management, should contain notes to explain the causes of the variances. Since the rule of `management by exception' is followed, greater attention in the reported statement is drawn towards the adverse variances, i.e., the reasons for the failure or poor performance are highlighted in particular, along with comments on general overall performance.

Illustration 11.7

From the following particulars let us try to draw a reconciliation between actual and the budgeted profit explaining the variances due to the various causes:

Budgeted/Standards		Actual
Units	4,000	3,500
Net price per unit	Rs.20.00	21.00
Material per unit	Kgs. 4.00	4.00
Rate of material per Kg.	Rs. 2.00	2.25
Labour hours per unit	Hrs. 5.50	4.50
Rate per labour hour	Re. 0.50	0.60
Variable overhead per labour hour	Rs. 0.80	1.00
Fixed overhead per unit	Re. 1.00	1.20

Direct Material Price Variance(DMPV) = Actual qty. x (Std. price - Actual price)
= 14,000 x (Rs. 2.00 - Rs.2.25)

= Rs. 3,500 (Adverse)

Direct Material usage Variance (DMUV)	= Std. price × (Std. Qty. for actual output - Actual Qty.)
Std. Qty. for actual output	= 3,500 × 4 Kg. = 14,000 Kgs.
Usage Variance	= Rs. 2× (14,000 - 14,000) = Nil
Direct Material Cost Variance (DMCV)	= Standard cost - Actual cost = Rs. 2 × 14,000 - Rs. 2.25 × 14,000 = 28,000 - Rs. 31,500 = Rs. 3,500 (Adverse)
Direct Labour Rate Variance (DLRV)	= Actual time × (Std. Rate - Actual Rate) = 15,750 hours × (0.50 - 0.60) = Rs. 1,575 (Adverse)
Actual time	= Actual hours per unit × Actual output = 4.50 × 3,500 = 15,750 hours.
Direct Labour Efficiency Variance (DLEV)	= Std. rate × (Std. time - Actual time) = Re. 0.50 × (19,250 - 15,750) = Rs. 1,750 (Favourable)
Std. time of actual output	= Std. hours per unit × Actual output = 5.50 × 3,500 = 19,250 hours
Direct Labour Cost Variance (DLCV)	= Standard Cost - Actual Cost = (Re. 0.50 × 19,250) - (Re. 0.60 × 15,750) = Rs. 9,625 - 9,450 = Rs. 175 (Favourable)
Variable Overhead Cost Variance (VOCV)	= Recovered Variable Overhead - Actual Variable Overheads = Rs. 15,400 - Rs. 15,750 = Rs. 350 (Adverse)
Recovered Variable Overheads	= Standard rate per hour × Standard hours for actual output = Re.0.80 × 19,250 = Rs. 15,400
Actual Variable Overheads	= Re. 1× 15,750 = Rs. 15,750
Fixed Overhead Expenditure Variance (FOEXPV)	= Budgeted Fixed Overheads - Actual Fixed Overheads = Rs. 4,000 - Rs. 4,200 = Rs. 200 (Adverse)
Budgeted Fixed Overheads	= Std. fixed overheads per unit × Budgeted output = Re. 1.00 × 4,000 = Rs. 4,000
Actual Fixed Overheads	= Actual rate per unit × Actual output = Re. 1.20 × 3,500 = Rs. 4,200
Fixed Overhead Volume Variance (FOVV)	= Recovered Fixed Overheads - Budgeted Fixed Overheads = Rs. 3,500–Rs. 4,000 = Rs. 500 (Adverse)
Recovered Fixed Overhead	= Std. rate per unit × Actual output = Re. 1 × 3,500 = Rs. 3,500
Fixed Overhead Cost Variance(FOCV)	= Recovered Fixed Overheads - Actual Fixed Overheads = Rs. 3,500 - 4,200 = Rs. 700 (Adverse)
Sales Price Variance (SPV)	= Act. qty. sold × (Std. price – Actual Price) = Rs. 3500 × (20 – 21) = Rs. 3,500 (Favourable)

Sales Volume Variance (SVOLV)	= Std. price × (Budg. Qty. - Actual Qty.) = Rs. 20 × (4000 - 3500) = Rs. 10,000 (Adverse)
Sales Value Variance (SVV)	= Budgeted Sales - Actual Sales = Rs. 20 × 4,000 - Rs. 21 × 3,500 = 80,000 - 73,500 = Rs. 6,500 (Adverse)

Variance with reference to profit

Standard cost per unit	= Rs. 8 + Rs. 2.75 + Rs., 4.40 + Re. 1 = Rs. 16.15
Standard Profit per unit	= Std. selling price per unit–Std. cost per unit = Rs. 20,00 - Rs. 16.15= Rs. 3.85
Actual cost per unit	= Rs. 9 + Rs. 2.70 + Rs. 4.50 + Rs. 1.20 = Rs. 17.40
Actual Profit per unit	= Actual selling price per unit - Actual cost per unit = Rs. 21.00 - Rs. 17.40 = Rs. 3.60 per unit
Budgeted Profit	= Budgeted quantity of sales × Standard profit per unit = Rs. 4,000 × Rs. 3.85 = Rs. 15,400
Actual Profit	= Actual quantity of sales x Actual profit per unit = 3,500 x Rs. 3.60 = Rs. 12,600
Value Variance	= Budgeted profit - Actual profit = Rs. 15,400 - Rs. 12,600 = Rs. 2,800 (Adverse)
Price Variance	= Actual qty. sold × (Std. profit per unit - Actual profit per unit) = 3,500 × (Rs. 3.85–Rs. 3.60) = Rs. 875 (Adverse)
Volume Variance	= Standard profit per unit x (Standard Quantity – Actual Qty.) = Rs. 3.85 × (4,000 – 3,500) = Rs. 1,925 (Adverse)

Profit and Loss Statement

For the year ending on .....

Budgeted Sales (4,000 × Rs. 20)		Rs. 80,000	
Less: Budgeted cost of sales (4,000 × 16.15)		Rs. 64,600	
Budgeted profit		Rs. 15,400	
Cost Variance:			
DMCV			
DMPV	3,500(A)		
DMUV	Nil	3,500 (A)	
DLCV			
DLRV	1,575 (A)		
DLEV	1,750 (F)	175 (F)	
OCV			
FOCV	700 (A)		
VOCV	350 (A)	1,050 (A)	
Sales Variances:			
Sales Price Variance		3,500 (F)	
Profit variance due to variance in sales volume		1,925 (A)	2,800 (A)
Actual Profit			12,600

Activity 11.5

From the following details, reconcile the budgeted sales with actual sales and standard profit with actual profit in terms of variances:

From the following details, reconcile the budgeted sales with actual sales and standard profit with actual profit in terms of variances:

	Quantity (units)	*Standard selling Price Rs.*	*Cost Rs.*	*Quantity (units)*	*Actual Selling price Rs.*	*Cost Rs.*
Product A	3,000	22	12	4,000	20	13
Product B	5,000	16	10	3,500	18	9

Activity 11.6

Identify the type of variance which will result in each of the stated situations and also indicate whether the variance is favourable or unfavourable:

- Jammnadas, a worker in the finishing department of a furniture factory, has gone on leave due to illness and is temporarily replaced by Gangaram. Jamanadas's wages are Rs. 200 per day whereas Ganga is to be paid at Rs. 220 per day.
- Because of the machining error, the cutting department got only three table tops from each piece of a teak board. Proper cutting should have resulted in four table tops per sheet of teak board.
- Installation of a new office equipment reduced factory office cost by Rs. 1,00,000 a month.
- The price of teak board increased by 5 per cent. This price increase was anticipated and was included in the computation of standard material cost.
- A shipment of lumber from Assam is delayed in transit because of transporters' strike. As a result, it is necessary to substitute a more expensive type of lumber.
- The standard time for shaping legs is 16 minutes per table. A new man was assigned to this operation and while he was learning the job, his production rate was three table legs every 21 minutes.
- The production level in 2002 was 22 per cent higher than estimated at the beginning of the year, while total fixed manufacturing overhead costs were as budgeted.

……

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11.10 SUMMARY

The profitability of a business enterprise depends basically on two factors; costs and sales. The efforts of the management should be to minimise the cost without compromising on the quality and pushing up the sales of the products. This requires proper monitoring of both costs and sales performance. Targets have to be fixed and the actual results should be compared with the pre-determined targets and variances found out.

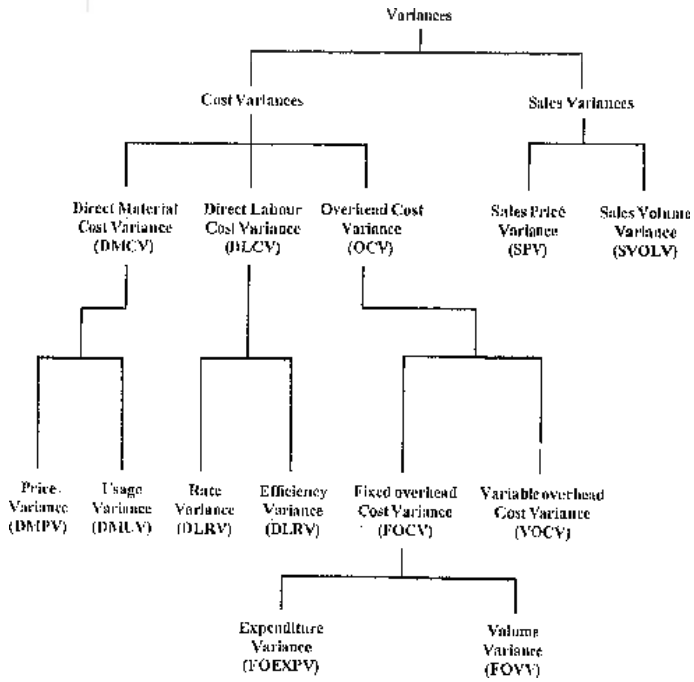
Variance refers to the difference between the standard (or budgeted performance) and actual performance. Variance analysis is mainly concerned with ascertaining the quantum of variances and the analysis of the causes responsible for such variances.

In the case of cost variance, if the actual cost is more than the standard cost, it is termed as an adverse variance. While in the case of sales variances, if the actual amount of sales is more than the budgeted sales, it is termed as a favourable variance.

Variance reports have to be submitted to the management from time to time. These reports contain details regarding the budgeted/standard performance, actual performance, the quantum of variances and the departments/executives responsible for adverse variances. On the basis of these reports, the management can fix the responsibilities on the executives for controllable variances and takes necessary steps so that such variances do not occur in future. For variances caused by uncontrollable factors, management should try its best to minimise the effect of such factors or revise budgeted/standard performance, if necessary.

Various types of variances can be understood with the help of Exhibit 10.1

Exhibit 10.1: A diagrammatic presentation of variances and their Interrelationships.



11.11 KEYWORDS

Direct Labour Cost Variance: The difference between the direct wages specified or the activity achieved and the actual wages paid.

Direct Labour Efficiency Variance: The portion of direct labour cost variance due to the difference between the standard labour hours specified for the activity achieved and the actual labour hours expended.

Direct Labour Rate Variance: The portion of direct Labour Cost Variance is due to the difference between the standard rate of wage specified and actual rate paid.

Direct Material Cost Variance: The difference between the standard cost of direct materials specified for the output achieved and the actual cost of direct material used.

Direct Material Price Variance: The portion of the direct material cost variance due to the difference between the standard price specified and the actual price paid.

Direct Material Usage Variance: It is that portion of the direct material cost variance due to the difference between the standard quantity specified (for the output achieved) and the actual quantity used.

Fixed Overhead Cost Variance: The difference between recovered fixed overheads (i.e. standard fixed overheads for actual output) and the actual fixed overheads.

Fixed Overhead Expenditure Variance: The variance due to the difference between budgeted fixed overheads and the actual fixed overheads incurred.

Fixed Overhead Volume Variance: The variance due to the difference between recovered overheads (i.e. standard overheads for actual output) and the budgeted overheads.

Overhead Cost Variance: The difference between recovered overheads (i.e. standard overheads for actual output) and the actual overheads.

Sales Price Variance: It is the variance on account of the difference between the actual selling price and standard selling price forth actual quantum of sales.

Sales Value Variance: It is the difference between the budgeted sales and the actual sales.

Sales Volume Variance: It is the variance on account of the difference between the budgeted and actual quantity of goods sold at standard price.

Variance: It is the difference between the standard/budgeted performance and the actual performance.

Variable Overhead Cost Variance: The difference between recovered variable overheads (i.e. standard variable overheads for actual output) and the actual variable overheads.

11.12 SELF-ASSESSMENT QUESTIONS/ EXERCISES

1) What is a Variance? Why are the variances computed?

2) How can the Variance be controlled?

3) List some possible causes, separately for “material price variance” and “material usage variance"

4) What is Direct Labour Efficiency (Time) Variance? What the managers or supervisors can (or should) do to ensure that there is no such unfavourable Variance?

5) Distinguish between Variable Overhead Cost Variance and Fixed Overhead Cost Variance. Why are such variances caused?

6) Discuss the importance of variance analysis in operational and management control. How does this technique help in what is popularly known as management by exception’?

7) State whether each of the following statements is “True or False”:

   a) A cost variance is said to be favourable if the standard cost is more than the actual cost. ☐ ☐

   b) Material usage variance is that portion of material cost variance that arises due to the difference between standard quantity for the output achieved and the actual quantity. ☐ ☐

   c) Labour efficiency variance is the difference between standard hours for the actual output and the actual hours. ☐ ☐

   d) Direct labour rate variance is the difference between the standard direct wages specified for the activity achieved and the actual direct wages paid. ☐ ☐

   e) Standard sales and budgeted sales are synonymous terms. ☐ ☐

   f) Recovered overheads and absorbed overheads mean the same thing. ☐ ☐

   g) Fixed overhead cost variance is the aggregate of the expenditure variance and the volume variance. ☐ ☐

   h) The selling department is responsible for factory overhead volume variance. ☐ ☐

8) Fill in the blanks:

- Variance analysis involves……..…..and of variance.
- Variance is the difference between standard performance and the…… performance.
- Material cost variance is sub-divided into variance and Variance.

- Overhead cost variance can be classified into…… …..……..overhead cost variance and overhead cost variance.
- Sales value variance is the difference between sales and…… ……. sales.

9) From the following particulars, compute Direct Material Variances:

Quantity of direct materials consumed	2,500 kgs.
Actual rate of material purchased	Rs.3 per kg.
Standard quantity of materials required per tonne of output	30 kg.
Standard rate of material	Rs. 2.50 per kg.
Output during the period	80 tonnes.

10) XYZ Ltd., which has opted standard costing, furnishes you the following information:

Standard:

Material for 700 units of Finished products	1,000 Kgs.
Price of materials	Re. 1 per kg.

Actual:

Output	2,10,000units
Opening Stock	Nil
Purchases	3,00,000 kg. For Rs. 2,70,000
Closing stock	20,000 kgs.

You are required to calculate

a) Direct Material Usage Variance,

b) Direct Material Price Variance and

c) Direct Material Cost Variance.

11) In a production department of a factory, there are 80 workers and the average rate of wages per worker is Re. 1 per hour. Standard working hours per week are 45, and the standard performance is six units per hour.

12) The following information is gathered from the labour records of Bajaj Electrical for January 2003.

Payroll allocation for direct labourRs. 40,000

Timecard analysis shows that 8,000 hours were worked on production lines. Production reports for the period showed that 2,000 units had been completed, each unit requiring standard labour time of 3 hours and a standard labour rate of Rs. 4 per hour.

Calculate the labour variances.

13) Basu Industries turns out only one article the prime cost standards for which have been established as follows

Total

Materials – 5lbs. @Rs. 4.20 Rs.21

Labour – 2 hours @Rs. 3 Rs. 6

The production schedule for the month of July, 2003 required completion of 5,000 pieces. However, 5,120 pieces were actually completed. Purchases for the month of July 2003 amounted to 30,000 lbs. of material at the total invoice price Rs. 1,35,000.

Production records for the month of July 2003 showed the following actual results: Material used 25,700 lbs.

Direct labour –15,150 hours Rs. 48,480 calculates the appropriate material and labour variances.

14) From the following data, calculate overhead variance: Fixed overhead budget for November Rs.50,000

Variable overhead budget for November Rs. 1,00,000

Budgeted production for the month 25,000units

Actual production for the month 27,000units

Actual Fixed overhead incurred Rs. 60,000

Actual variable overhead incurred Rs. 1,20,000

15) The budgeted and actual sales of Vikas Ltd. Manufacturing and marketing a single product are furnished below:

Budgeted Sales 10,000 units at Rs. 10 per unit

5,000 units at Rs. 8 per unit

Actual Sales 8,000 units at Rs. per unit

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Calculate (a) Sales Value Variance

- Sales Price Variance and
- Sales Volume Variance

Answers to Activities

11.1DMCV = Rs. 76,000 (F) DMPV = Rs.60,000(F)

DMUV = Rs. 16,000(F)

11.2DLCV = Department A Rs. 4,000(A)

Department B 3,000 (F) 1,000 (A) DLRV =
Department A 4,000 (A)

Department B 3,000 (A) 7,000 (A) DLEV =
Department A Nil

Department B 6,000 (F) 6,000(F)

11.3OCV = Rs. 2,000(F)

VOCV = 1,200(F)

FOCV = 800(F)

11.4FOCV = Rs. 1,280 (A) FOEXPV = 8,000(A)

FOVV = Rs. 6,720 (F)

Notes:

FOCV = Recovered Fixed Overheads – Actual Fixed Overheads

= 1,26,720 – 1,28,000

= 1,280 (A)

Recovered Fixed Overheads have been calculated as under:

Man hours per day	6,400
Multiplied by output per man hour in units	X 0.9
Total units produced per day	
Multiplied by No. of working days	5,760
Total units produced in the month	X 22
Multiplied by standard overhead	1,26,720
Cost per unit i.e., Rs. 1,20,000 divided by	
1,20,000 (6,000 X 1 X 20)	X 1
	Rs. 1,26,720

FOEXPV = Budgeted Fixed Overheads – Actual Fixed Overheads

= 1,20,000 – 1,28,000

= 8,000 (A)

FOVV = Recovered Fixed Overheads – Budgeted Overheads

= 1,26,720 – 1,20,000

= 6,720 (F)

a) Sales Variance

Sales value variance	Rs. 3,000(A)
Sales Price variance	Rs. 1,000(A)
Sales volume variance	Rs. 2,000(A)
Budgeted Sales	Rs. 1,46,000
Less sales price variance(A)	-1,000
Less sales volume variance(A)	-2,000
Actual sales	1,43,000

Profit variance 500(A)

Price variance 1,000(A)

Volume variance 1,000 (A) Overall cost variance 500(A)

Statement of Reconciliation of Actual Profit with Budgeted Profit Budgeted Profit = Rs. 60,000

Less unfavourable variances:		
Due to Price	Rs. 1,000*	
Due to cost	500*	1,500
Add favourable variances due		58,500
to volume***		1,000
Actual Profit		59,500

* Sales Price Variance is Rs. 1,000 as earlier shown.

** Variance in profit due to cost is: (Standard cost –Actual cost) X Actual Quantity.

Applying the formula –

A (12-13)X 4,000 = 4,000(A)

B (10-9)X3,500 = 3,500(F)

500 (A)

*** Variance in profit due to volume is (Standard Quantity – Actual Quantity) X Standard Profit

Applying formula –

A (3,000 – 4,000X10=10,000 (F)

B (10-9) X 3,500X6= 9,000(A)

1,000(F)

a) Labour cost increased because a higher wage was paid. Hence unfavourable Direct Labour Rate Variance(DLRV).

- The material was wasted. More material was used than allowed by the standard. Hence unfavourable Direct Material Usage Variance (DMUV).
- Factory office costs are a part of manufacturing overhead. As such, it is a favourable Overhead Cost Variance(OCV).
- Because the price change was anticipated and was already included for calculating standard material cost, it does not result in a variance from standard. Hence, no variance.
- The substitution resulted in a higher price for material used though the quantity was not affected. Hence unfavourable Direct Material Price Variance(DMPV).
- Whereas the standard time per leg is four minutes, the new worker took seven minutes. Hence unfavourable Direct Labour Efficiency variance(DLEV).
- In this situation, the actual fixed overhead costs and the budgeted costs were the same though the production level was higher by 22 per cent. The recovery *for* fixed overhead in made on per unit basis. This will result in favourable Fixed Overhead Volume Variance (FOVV).

11. ANSWERS TO SELF-ASSESSMENT QUESTIONS/EXERCISES

7 (a)True;(b)True;(c)True;(d)True;(e)False(f)True;(g)True;(h) True; (i) False.

8 (a) calculation, interpretation; (b) actual; (c) price, quantity; (d) fixed, variable; (e) budgeted, actual.

9 DMCV Rs. 1,500 (A); DMPV Rs. 1,250 (A); DMUV Rs. 250(A)

10 (a) Rs. 20,000 (F); (b) Rs. 28,000 (F); (c) Rs. 48,000(F)

1) Labour Rate Variance Rs. 360(F)

(Hint: Standard wages Rs. 14,400; Actual wages Rs. 14,040

No note is to be taken of idle time).

2) Rate Variance Rs. 8,000 (A); Efficiency Variance Rs. 8,000 (A); Cost Variance Rs. 16,000(A);

13 DMCV Rs. 8,130 (A); DMPV = Rs. 7,710 (A); DMUV Rs. 420 (A) DLCV Rs. 2,400 (A); DLRV = Rs. 3,030 (A); DLEV Rs. 630(F)

14 Volume Variance Rs. 4,000 (F); Expenditure Variance

Rs. 10,000 (A); Fixed Overhead Cost Variance Rs. 6,000 (A); Variable Over- head cost variance Rs. 12,000 (A)

15 (a) Rs. 36,000 (F); (b) Rs. 6,000 (F), (c) Rs. 30,000(F)

10.13 FURTHER READINGS

BhattaChary S.K., Dearden John 2002, *Costing for Management,* Vikas Publishing House, New Delhi (Chapter 7)

Khan M.Y. and Jain P.K., 2002, *Management Accounting* (Chapter 17), Tata McGraw Hill :NewDelhi

Daff, Trevor. 1986, *Cost and management Accounting,* WoodheadFulkner (Chapter 8).

Davidson, S. and R.L. Weil.1977, *Handbook of Modern Accounting,* McGraw-hill (Chapter 13).

Glautier, M.W.E. and B. Underdown.1982, *Accounting Theory & practice,* ELBS (English Language Book Society) (Chapter 37).

Douch N., Birnberg J.G. and Demiski, Joel.1982, *Cost Accounting.*Harcourt Brace Jovanovich: New York (Chapter 11).

Maheshwari, S.N. 1987, *Management Accounting and Financial Control,* 5th edition, Mahavir Book Depot: Delhi (Section C, Chapter 3).

BLOCK 4
FINANCIAL STATEMENT ANALYSIS

ignou
THE PEOPLE'S
UNIVERSITY

UNIT 12 UNDERSTANDING ANNUAL REPORT

Objectives:

After studying this unit, you should be able to:

- Develop abilities to navigate annual reports
- Know the important contents in an annual report
- Learn about the qualitative and quantitative aspects of the company
- Analyze and understand the financial statements

Structure

12.1 Introduction

12.2 Contents of Annual Report

12.3 Difference between Annual Reports of public company and private company

12.4 Annual Report for a government company

12.5 Green Annual Report

12.6 Summary

12.7 Key words

12.8 Self-assessment exercise

12.9 Further readings

12.1 INTRODUCTION

In Unit 12 which is "Understanding Annual Report", we will look at a company's annual report and understand some of the important facets of this document.

The objective of this chapter is to help you develop your abilities to navigate annual reports. Annual report is a report that is prepared yearly. It contains information about the firm's business and its financial position and performance. The readers can navigate through the annual report to learn about the qualitative aspects with respect to the firm. Various stakeholders like investors, analysts, suppliers, customers, and employees use the annual report to facilitate decision-making in areas such as investments, credit granting, and establishing customer-supplier relationship. This unit will provide you with the skills to navigate annual reports with ease and find the relevant topics of your interest.

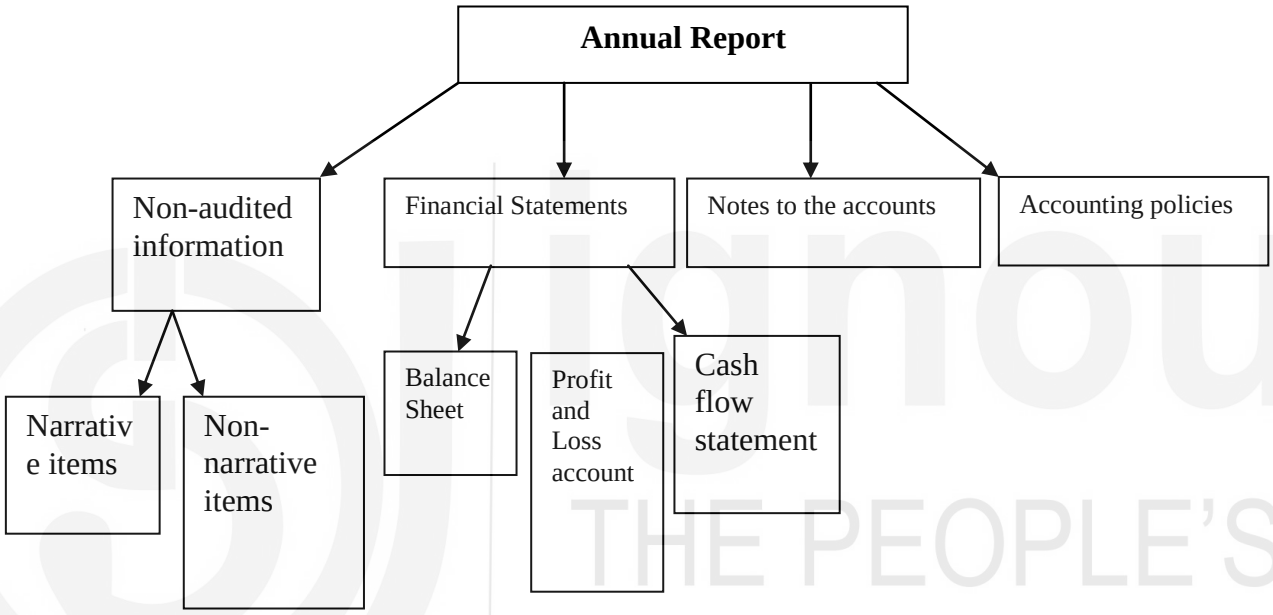
To begin with, what is an annual report? An annual report is a document that publicly traded (or listed) companies must provide annually to shareholders. It describes the company's operations and financial performance/position in a detailed manner. Apart from this, it contains images and graphics coupled

with an accompanying narrative, all of which highlight the company's activities over the past year. The annual report may also provide information regarding the company's forecasts.

12.2 CONTENTS OF ANNUAL REPORT

Let's look at the contents of an annual report. Figure 1 displays the four broad contents of an annual report, namely, 1) Non-audited information, 2) Financial statement, 3) Notes to the accounts and 4) Accounting policies.

Figure 1: Contents of an annual report



Let's understand each of the four broad contents one by one.

1) Non-audited information

The non-audited information is further classified into:

a) Narrative items and b) Non-narrative items.

a) Narrative items

Within narrative items in the annual report, following are some of the important statements: Chairman's statement, Directors' report, Operating and financial review, Statement of corporate governance, Auditors report, Statement of directors' responsibilities, Sustainability report and Management Discussion and Analysis.

i) Chairman's statement

Chairman's statement highlights corporate activities, strategies, researches, labour relations, main achievements, focuses on future goals, growth. In corporate annual report, the chairman's statement may or may not always be found but may be provided to shareholders as a separate document. Chairman's statement may concentrate on economic condition of the industry to which the

corporate unit belongs and the economy of the country. It also provides an overview of the trading year, a personalized overview of the company's performance over the past year and usually covers strategy, financial performance and future prospects.



Chairman's Statement

Dear Shareholders,

I am pleased to share with you an update on your Company's performance for 2019-20. The year saw a challenging business environment with lower GDP growth and slowdown in consumption. This resulted into a weakening consumer sentiment and lower demand for the categories in which we operate. The novel coronavirus has affected not just human health but severely impacted businesses and the society at large. Against this backdrop, your Company has delivered competitive, profitable and responsible growth. Our growth fundamentals are in a good shape with gains in penetration and distribution. Most of our brands have gained in terms of mind measures and this augurs well for the future.

For the nine months, ended December 2019, Domestic Consumer Growth was at 6%, reflective of our strong performance delivery. Given the disruptions to supply chain arising from COVID-19 in March 2020, for the full year 2019-20, Domestic Consumer Growth was 2% with Underlying Volume Growth of 2%. Our EBITDA margin improved by 100 bps on comparable basis, PAT (bei)*, grew by 11% to ₹ 6,743 crores and PAT at ₹ 6,738 crores was up by 12%. We sustained our track record of strong cash generation. The Board of Directors have proposed a final dividend of ₹ 14 per share, subject to the approval of the shareholders at the AGM. Together with the interim dividend of ₹ 11 per share, the total dividend for the financial year ending 31st March 2020 amounts to ₹ 25 per share; an increase of 14%.

The FMCG market saw disparate trends across divisions. There was a significant shift in discretionary spends and this impacted the Beauty & Personal Care division. Despite the challenges, categories such as Skin, Hair and Oral Care delivered good growth. With on-trend innovations such as Matte revolution and 3D makeup, Lakmé continued to be India's No. 1 Cosmetics brand. In Skin Cleansing, brands such as Dove and Pears led the premiumisation agenda. During the year, we also launched, a purpose-driven brand from the Unilever stable, 'Love, Beauty and Planet' - made from sustainably sourced ingredients and packaged in recycled plastic.

*before exceptional items

Mr. Sanjiv Mehta
Chairman and Managing Director

"We delivered EBITDA of ₹ 9,600 crores, our EBITDA margins are at its highest ever at 25.1% and our profit crossed the ₹ 6,700 mark for the first time."

4 | Hindustan Unilever Limited

Your Company's Home Care division sustained its robust volume-driven and profitable growth during the year. The Fabric Solutions business delivered a strong performance with a focus on premiumisation with Surf excel and Rin liquids. To strengthen our premium portfolio further, we launched 'Love & Care', an expert Fabric Solutions brand. We drove market development across our Home and Hygiene business with Vim and Domex. While Vim continued to upgrade existing bar consumers to liquid and drive adoption of bars in rural India, Domex launched a powder format in select geographies to address the need for affordable and efficacious sanitation solution. This year, we also launched Pureit Copper+, an innovation inspired by the age-old tradition of storing water in copper vessels, which adds goodness of copper to RO purified water.

The Foods & Refreshment division witnessed competitive and profitable growth across categories. The Jams and Ketchup business continued to deliver good growth and in Spreads, we launched the iconic Hellmann's Mayonnaise in Kolkata this year. With on-trend, superior product offering, Tea continued to deliver robust, volume-led growth. The Ice Cream and Frozen Desserts business delivered strong growth on the back of innovations that catered to both global and local palates. For instance, we launched the Cornetto Brownie Silk, Magnum Hazelnut, a Sundae Cup alongside flavours crafted to address local tastes such as Aamras, Dryfruit Rabri Kulfi and Tender Coconut tub.

We successfully completed the integration of the GlaxoSmithKline Consumer Healthcare Limited (GSK CH) business into HUL. The merger, one of the biggest in the Indian FMCG space was completed virtually while the entire nation was under lockdown. This just goes to demonstrate the resolve and resilience of our people. The merger brings to HUL household brands such as Horlicks and Boost that are deeply in sync with our beliefs on purpose and just like our Water, Sanitation and Hygiene (WASH) agenda, in clear alignment with both the Sustainable Development Goals and the Government's thrust on 'Poshan Abhiyan' alongside 'Swachh Bharat'. The merger between the two companies presents us with an opportunity to combine our respective strengths and work towards further strengthening our position in Foods, Nutrition and Refreshments.

Your Company's supply chain continued its focus on consumers and customers. Our on-shelf availability was at an all-time high with the Customer Case Fill on Time (CCFOT) at over 95%. At the same time, we improved our on-shelf quality by 30% over the previous year. Our cost saving programmes delivered a 7% of turnover as gross savings last year. The e-Commerce channel continued its strong growth trajectory on the back of thought leadership and exemplary execution. We continue to drive organisation wide digital transformation agenda under the umbrella of 'Reimagining HUL' to make your Company future-fit.

Our brands continued to live our purpose of making sustainable living commonplace directly and through partnerships. Our WASH initiatives driven by brands such as Lifebuoy and Domex, together with Hindustan Unilever Foundation, reached millions of people across India. Our brands such as Surf excel, Brooke Bond Red Label and Hamam continued to drive positive social change through their purpose-driven and impactful advertising. In line with the Government of India's Swachh Bharat Abhiyan, our 'Swachh Aadat, Swachh Bharat' programme, continued to promote good health and hygiene practices.

Your Company continued to drive 'Project Shakti', an initiative aimed at enhancing livelihoods and building opportunities for small scale entrepreneurs in rural India. Your Company now has nearly 1.2 lakhs Shakti Entrepreneurs (Shakti Ammas) across India.

We remain committed to reducing our environmental footprint. During the year, we took significant steps to further reduce waste, water consumption, energy usage and CO_2 emissions in our factories and offices. We increased the renewable energy share in our manufacturing to 71%, out of which, the grid electricity

~1.2 lakhs
Shakti entrepreneurs empowered

*pending independent assurance

39,000 tonnes
of post-consumer use plastic waste disposed in environment-friendly way

used was 100% renewable. All our factories and warehouses continue to maintain 'zero non-hazardous waste to landfill sites' status. To address the challenges of depleting water resources, Hindustan Unilever Foundation, along with its partners, has created a cumulative water conservation potential of over 1,200 billion litres* till financial year 2019-20. In 2019, your Company has disposed more than 39,000 tonnes of post-consumer use plastic waste in an environment-friendly way. This has been done with the help of collection and disposal partners in more than 50 cities across India.

I would like to take this opportunity to reiterate that your Company stands united with the nation during this challenging phase of COVID-19. To support the nation in tackling the crisis, we were one of the first companies to commit ₹ 100 crores. Since then, in partnership with the Government, civic bodies, corporates, social organisations and hospitals, we have undertaken several initiatives such as donating sanitation and hygiene products to medical institutions and underserved sections of the society, upgrading health care facilities in Government hospitals & testing centres, setting up isolation centres and creating large scale awareness campaigns.

I would like to thank each and every employee as well as those working with our partners across our value chain for their commitment and service to HUL in these challenging times. Most importantly, I would like to thank you, our shareholders, for your overwhelming trust, support and confidence in Hindustan Unilever Limited.

Warm regards,

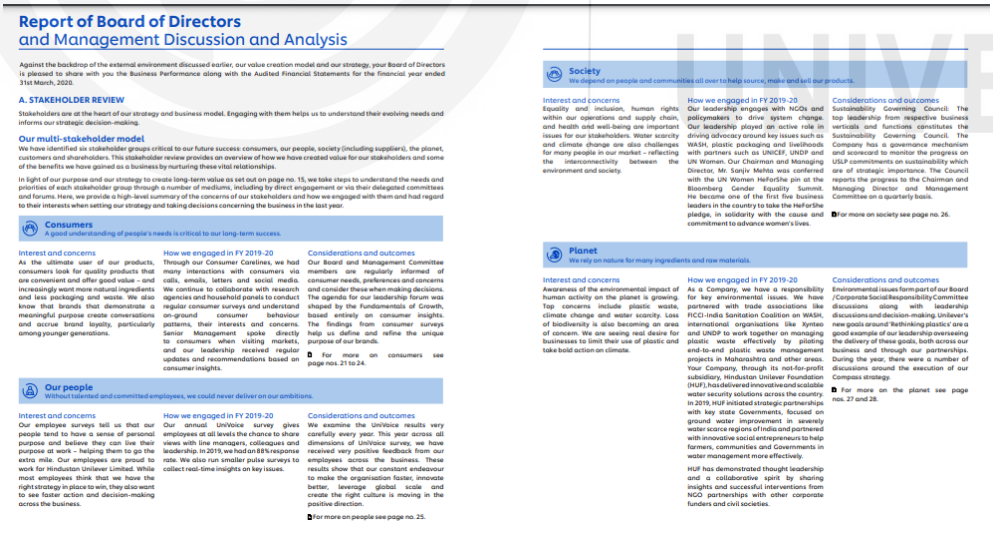
Sanjiv Mehta
Chairman and Managing Director

Integrated Annual Report 2019-20 | 5

Figure 2: Snapshot of Chairman's statement of Hindustan Unilever Limited (HUL)

ii) Directors' Report

Its principal objective is to supplement the financial information with other information consider necessary for a full appreciation of the company's activities. It includes:



Report of Board of Directors and Management Discussion and Analysis

Against the backdrop of the external environment discussed earlier, our value creation model and our strategy, your Board of Directors is pleased to share with you the Business Performance along with the Audited Financial Statements for the financial year ended 31st March, 2020.

A. STAKEHOLDER REVIEW

Stakeholders are at the heart of our strategy and business model. Engaging with them helps us to understand their evolving needs and informs our strategic decision-making.

Our multi-stakeholder model

We have identified six stakeholder groups critical to our future success: consumers, our people, society (including suppliers), the planet, customers and shareholders. This stakeholder review provides an overview of how we have created value for our stakeholders and some of the benefits we have gained as a business by nurturing these vital relationships.

In light of our purpose and our strategy to create long-term value as set out on page no. 15, we take steps to understand the needs and priorities of each stakeholder group through a number of mediums, including by direct engagement or via their delegated committees and forums. Here, we provide a high-level summary of the concerns of our stakeholders and how we engaged with them and had regard to their interests when setting our strategy and taking decisions concerning the business in the last year.

Consumers
A good understanding of people's needs is critical to our long-term success.

Interest and concerns	How we engaged in FY 2019-20	Considerations and outcomes
As the ultimate user of our products, consumers look for quality products that are convenient and offer good value – and increasingly want more natural ingredients and less packaging and waste. We also know that brands that demonstrate a meaningful purpose create conversations and accrue brand loyalty, particularly among younger generations.	Through our Consumer Carelines, we had many interactions with consumers via calls, emails, letters and social media. We continue to collaborate with research agencies and household panels to conduct regular consumer surveys and understand on-ground consumer behaviour patterns, their interests and concerns. Senior Management spoke directly to consumers when visiting markets, and our leadership received regular updates and recommendations based on consumer insights.	Our Board and Management Committee members are regularly informed of consumer needs, preferences and concerns and consider these when making decisions. The agenda for our leadership forum was shaped by the Fundamentals of Growth, based entirely on consumer insights. The findings from consumer surveys help us define and refine the unique purpose of our brands.

For more on consumers see page nos. 21 to 24.

Our people
Without talented and committed employees, we could never deliver on our ambitions.

Interest and concerns	How we engaged in FY 2019-20	Considerations and outcomes
Our employee surveys tell us that our people tend to have a sense of personal purpose and believe they can live their purpose at work – helping them to go the extra mile. Our employees are proud to work for Hindustan Unilever Limited. While most employees think that we have the right strategy in place to win, they also want to see faster action and decision-making across the business.	Our annual UniVoice survey gives employees at all levels the chance to share views with line managers, colleagues and leadership. In 2019, we had an 88% response rate. We also run smaller pulse surveys to collect real-time insights on key issues.	We examine the UniVoice results very carefully every year. This year across all dimensions of UniVoice survey, we have received very positive feedback from our employees across the business. These results show that our constant endeavour to make the organisation faster, innovate better, leverage global scale and create the right culture is moving in the positive direction.

For more on people see page no. 25.

Society
We depend on people and communities all over to help source, make and sell our products.

Interest and concerns	How we engaged in FY 2019-20	Considerations and outcomes
Equality and inclusion, human rights within our operations and supply chain, and health and well-being are important issues for our stakeholders. Water scarcity and climate change are also challenges for many people in our market – reflecting the interconnectivity between the environment and society.	Our leadership engages with NGOs and policymakers to drive system change. Our leadership played an active role in driving advocacy around key issues such as WASH, plastic packaging and livelihoods with partners such as UNICEF, UNDP and UN Women. Our Chairman and Managing Director, Mr. Sanjiv Mehta was conferred with the UN Women HeForShe pin at the Bloomberg Gender Equality Summit. He became one of the first five business leaders in the country to take the HeForShe pledge, in solidarity with the cause and commitment to advance women's lives.	Sustainability Governing Council: The top leadership from respective business verticals and functions constitutes the Sustainability Governing Council. The Company has a governance mechanism and scorecard to monitor the progress on USLP commitments on sustainability which are of strategic importance. The Council reports the progress to the Chairman and Managing Director and Management Committee on a quarterly basis.

For more on society see page no. 26.

Planet
We rely on nature for many ingredients and raw materials.

Interest and concerns	How we engaged in FY 2019-20	Considerations and outcomes
Awareness of the environmental impact of human activity on the planet is growing. Top concerns include plastic waste, climate change and water scarcity. Loss of biodiversity is also becoming an area of concern. We are seeing real desire for businesses to limit their use of plastic and take bold action on climate.	As a Company, we have a responsibility for key environmental issues. We have partnered with trade associations like FICCI-India Sanitation Coalition on WASH, international organisations like Xynteo and UNDP to work together on managing plastic waste effectively by piloting end-to-end plastic waste management projects in Maharashtra and other areas. Your Company, through its not-for-profit subsidiary, Hindustan Unilever Foundation (HUF), has delivered innovative and scalable water security solutions across the country. In 2019, HUF initiated strategic partnerships with key state Governments, focused on ground water improvement in severely water scarce regions of India and partnered with innovative social entrepreneurs to help farmers, communities and Governments in water management more effectively. HUF has demonstrated thought leadership and a collaborative spirit by sharing insights and successful interventions from NGO partnerships with other corporate funders and civil societies.	Environmental issues form part of our Board / Corporate Social Responsibility Committee discussions along with leadership discussions and decision-making. Unilever's new goals around 'Rethinking plastics' are a good example of our leadership overseeing the delivery of these goals, both across our business and through our partnerships. During the year, there were a number of discussions around the execution of our Compass strategy.

For more on the planet see page nos. 27 and 28.

Figure 3: Snapshot of Director's report of Hindustan Unilever Limited (HUL)

- A description of the principal activities of the company
- A fair review of the current and future prospects of the business
- Information on the sale, purchase or valuation of assets Recommended dividends
- Employee statistics

- Names of directors and their interests
- Details of political or charitable donations

iii) Operating and financial review

- This is a statement in the annual report which provides a formalized, structured explanation of financial performance
- The operating review covers items such as operating results, profit and dividend
- The financial review discusses items such as capital structure and treasury policy

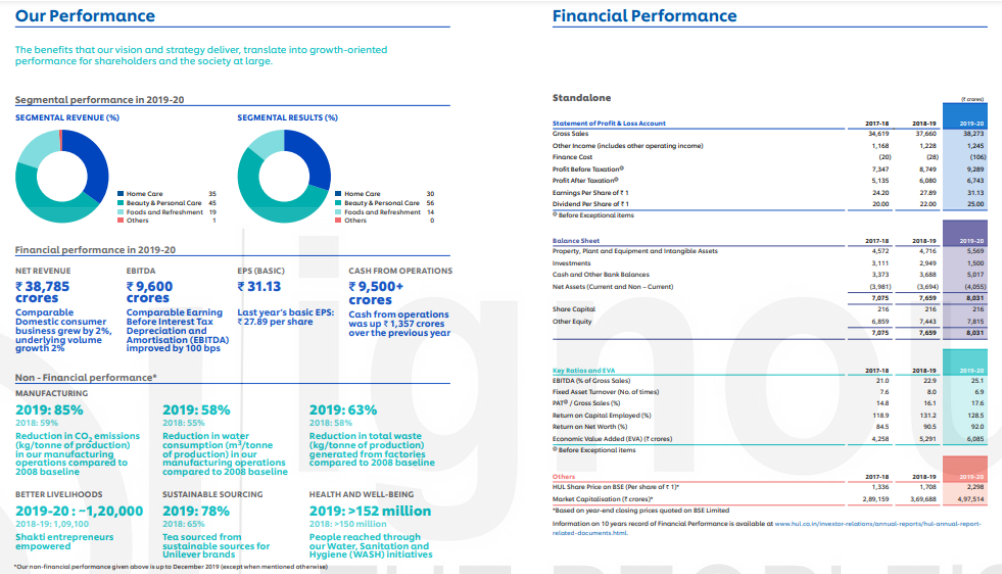


Figure 4: Snapshot of operating and financial review of Hindustan Unilever Limited (HUL)

iv) Statement of corporate governance

Statement of corporate governance includes a statement of corporate governance procedures and compliance, information on board composition, statements on the company's performance, and information about compliance and conformance with best practices for good corporate governance. Corporate Governance focuses on a company's structure and processes to ensure transparent and responsible corporate behaviour. Corporate governance is a dynamic process. Effective corporate governance not only reduces the agency costs incurred due to division of ownership but it helps in saving of time and resources of investors. On one hand, poor corporate governance practices enhance the agency costs and reduce firm valuation whereas on the other, good corporate governance facilitates independent supervision of company's management and encourages effective decision making which enhances firm value, reputation, credit rating, improves overall performance, lowers cost of capital, improves access to capital markets and increases competitive edge.

Corporate Governance Report

The report on Corporate Governance is pursuant to Regulation 34 (3) read with Schedule V of SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 (**SEBI LODR**). The Company has complied with the applicable requirements of the SEBI LODR and amendments thereto.

1. Corporate Governance Philosophy

Corporate Governance philosophy of Titan Company Limited ("the Company" or "Titan" or "We" or "Our") is founded upon a rich legacy of fair, ethical and transparent governance practices by adopting the highest standards of professionalism, honesty, integrity and ethical behaviour. Titan strongly believes that a company can emerge as a strong leader only by following good and sound Corporate Governance principles. Good corporate governance is a synonym for sound management, transparency and disclosure, encompassing good corporate practices, procedures, standards and implicit rules which propel a company to take sound decisions, thus maximising long-term shareholder value without compromising on integrity, societal obligations, environment and regulatory compliances. The Company's corporate governance philosophy has been further strengthened through the Tata Code of Conduct and Codes of Fair Disclosure and Conduct. Overall, the Company's corporate governance practices are a reflection of its value system encompassing its culture, policies, and relationships with its stakeholders. As a Company with a strong sense of values and commitment, your Company understands that Corporate Governance is not just a destination, but a journey to constantly improve sustainable value creation. The vision of the Company: "To create elevating experiences for the people we touch and significantly impact the world we work in" underpins the Corporate Governance philosophy.

2. Board of Directors

Titan was promoted by the Tamilnadu Industrial Development Corporation Limited (TIDCO) and the Tata Group. As on 31st March 2020, the Company had 12 Directors, comprising 11 Non-Executive Directors and 1 Executive Director. The profiles of Directors can be accessed on the Company's website at https://www.titancompany.in/investors/investor-information/board-of-directors

The composition and category of Directors as at 31st March 2020 is as follows:

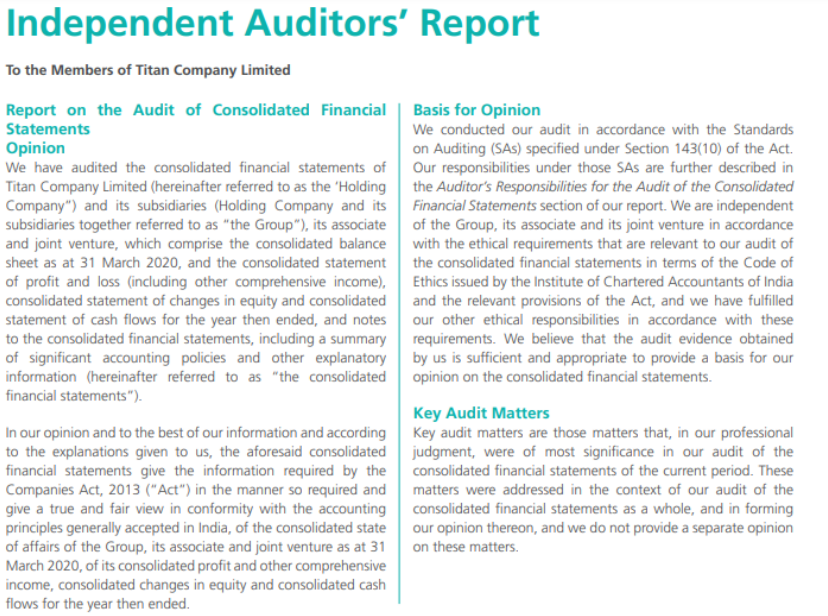
Category	Name of Director	No. of Directors
Nominee Directors of TIDCO (Non-Executive, Non-Independent)	Mr. N Muruganandam Mr. V Arun Roy Ms. Kakarla Usha[1]	3
Nominee Directors of Tata Group (Non-Executive, Non-Independent).	Mr. N N Tata Mr. Bhaskar Bhat[2]	2
(Executive, Non-Independent)	Mr. C. K. Venkataraman[3]	1
Other Directors (Non-Executive, Independent)	Ms. Hema Ravichandar Ms. Ireena Vittal Mr. Ashwani Puri Mr. B Santhanam Mr. Pradyumna Vyas Dr. Mohanasankar Sivaprakasam[4]	6
Total		**12**

[1] Ms. Usha Kakarla, IAS, nominee of TIDCO was appointed on the Board effective 21st November 2019.
[2] Mr. Bhaskar Bhat, nominee of Tata Group was appointed on the Board effective 1st October 2019 after his retirement as the Managing Director of the Company effective on 30th September 2019.
[3] Mr. C. K. Venkataraman was appointed as Managing Director of the Company effective 1st October 2019 subject to approval of the shareholders.
[4] Dr. Mohanasankar Sivaprakasam was appointed on the Board effective on 3rd July 2019 and his appointment was approved by the Shareholders at the 35th Annual General Meeting of the Company held on 6th August 2019.

Figure 5: Snapshot of Corporate Governance Report of Titan Company

v) Auditor's report

The independent and external audit report is typically published with the company's annual report. The auditor's report is important because banks and creditors require an audit of a company's financial statements before lending to them. The auditors shall make a report to the members of the company. It is the obligatory duty of the directors to get the accounts of company audited every year by qualified auditors. An auditor is appointed by the shareholders of a company to audit accounts and as such, auditor addresses the report to the shareholders of the company on the accounts audited by him. It is the duty of the board of directors to attach the auditor's report to the balance sheet so as to provide a copy of auditor's report to every member of company.



Independent Auditors' Report

To the Members of Titan Company Limited

Report on the Audit of Consolidated Financial Statements

Opinion

We have audited the consolidated financial statements of Titan Company Limited (hereinafter referred to as the 'Holding Company") and its subsidiaries (Holding Company and its subsidiaries together referred to as "the Group"), its associate and joint venture, which comprise the consolidated balance sheet as at 31 March 2020, and the consolidated statement of profit and loss (including other comprehensive income), consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies and other explanatory information (hereinafter referred to as "the consolidated financial statements").

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid consolidated financial statements give the information required by the Companies Act, 2013 ("Act") in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India, of the consolidated state of affairs of the Group, its associate and joint venture as at 31 March 2020, of its consolidated profit and other comprehensive income, consolidated changes in equity and consolidated cash flows for the year then ended.

Basis for Opinion

We conducted our audit in accordance with the Standards on Auditing (SAs) specified under Section 143(10) of the Act. Our responsibilities under those SAs are further described in the *Auditor's Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Group, its associate and its joint venture in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in terms of the Code of Ethics issued by the Institute of Chartered Accountants of India and the relevant provisions of the Act, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence obtained by us is sufficient and appropriate to provide a basis for our opinion on the consolidated financial statements.

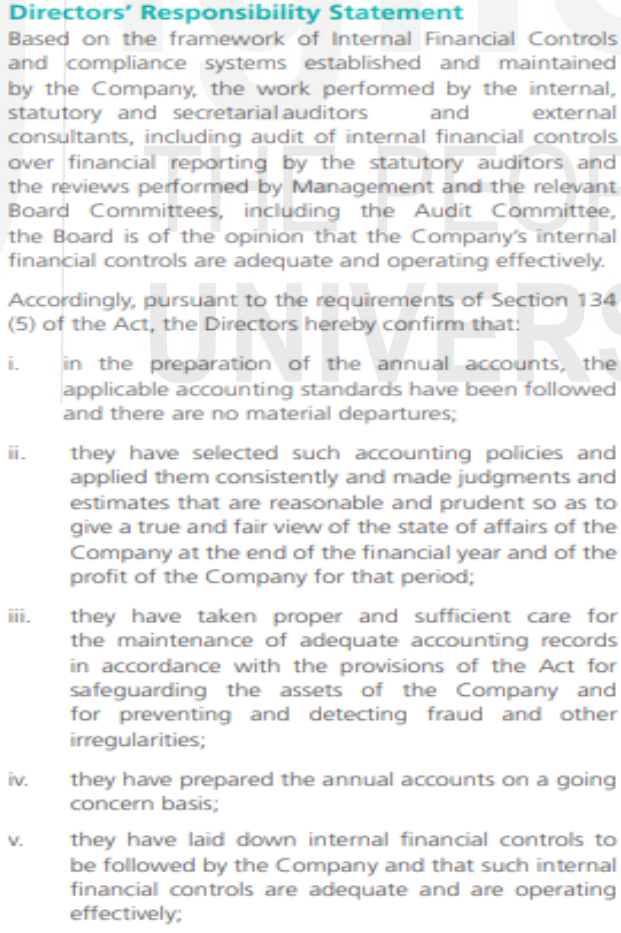
Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Figure 6: Snapshot of Auditor's report of Titan Company

vi) Statement of directors' responsibilities

It is an important statement in the annual report and is prepared in accordance with section 135 (5) of the Companies Act, 2013.



Directors' Responsibility Statement

Based on the framework of Internal Financial Controls and compliance systems established and maintained by the Company, the work performed by the internal, statutory and secretarial auditors and external consultants, including audit of internal financial controls over financial reporting by the statutory auditors and the reviews performed by Management and the relevant Board Committees, including the Audit Committee, the Board is of the opinion that the Company's internal financial controls are adequate and operating effectively.

Accordingly, pursuant to the requirements of Section 134 (5) of the Act, the Directors hereby confirm that:

i. in the preparation of the annual accounts, the applicable accounting standards have been followed and there are no material departures;

ii. they have selected such accounting policies and applied them consistently and made judgments and estimates that are reasonable and prudent so as to give a true and fair view of the state of affairs of the Company at the end of the financial year and of the profit of the Company for that period;

iii. they have taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of the Act for safeguarding the assets of the Company and for preventing and detecting fraud and other irregularities;

iv. they have prepared the annual accounts on a going concern basis;

v. they have laid down internal financial controls to be followed by the Company and that such internal financial controls are adequate and are operating effectively;

Figure 7: Snapshot of statement of directors' responsibilities of Titan Company

vii) **Sustainability** report

A sustainability report is a report published by a company about the economic, environmental and social impacts caused by its everyday activities. A sustainability report is the key platform for communicating sustainability performance and impacts – whether positive or negative.


Sustainability at Titan
Success is measured in terms of how much Titan has been able to impact its environment, society and other stakeholders. Be it the natural resources or impact on people in the community, the below illustration gives a glimpse of the success the Company has achieved over the years.
Energy conservation
67% Electricity from Renewable Sources at Manufacturing Plants
Water conservation
47% of water used across the Company is recycled and lake rejuvenation initiative undertaken
Recycling
44% of gold and 47% of brass used in production is from recycled sources
CSR
Reached out to over 3.5 lakh beneficiaries through various CSR initiatives

Figure 8a: Snapshot of Sustainability report of Titan Company

Apart from the broader overview of sustainability, the Sebi (Securities and Exchange Board of India) has developed new norms, voluntary this year (2019-20) and mandatory thereafter, which would apply to the top 1,000 listed entities. The Sebi reporting norms on business responsibility follow the National Guidelines on Responsible Business Conduct, put forth by the ministry of corporate affairs last year. The norms require that businesses conduct themselves with integrity and transparency, provide goods and services in a safe, sustainable manner, and respect the interests of all their stakeholders, which is unexceptionable.

The new requirements include disclosure on redressal procedures for complaints/grievances, including on those pending resolution, R&D spends on better environmental and social outcomes, employee skill levels, including of those differently abled, and provision for insurance, maternity, paternity and day-care facilities. But also required now are routine disclosures upfront of energy consumed to turnover, ditto for water, and, more generally, the

percentage of recycled or reused input materials to total raw material usage (by value) is also to be revealed.

Gender diversity should get more attention in the reporting, and a board committee, rather than just a board member, should be accountable for ESG reporting.

Businesses are, of course, accountable to their shareholders. But, increasingly, consumers, employees and investors also seek sustainability, social responsibility and good governance in corporate performance.

ESG — short for environment, social and governance — is quite the rage among large investors. That means that companies must disclose their governance processes, social practices and environmental impacts. That is what Sebi wants.

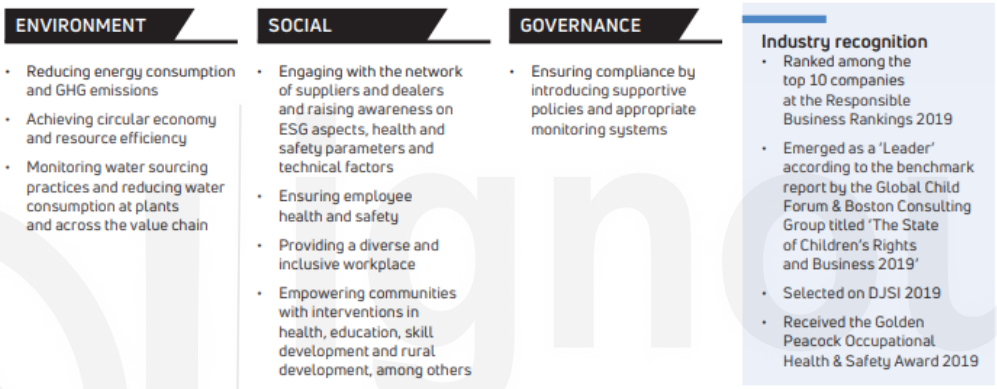
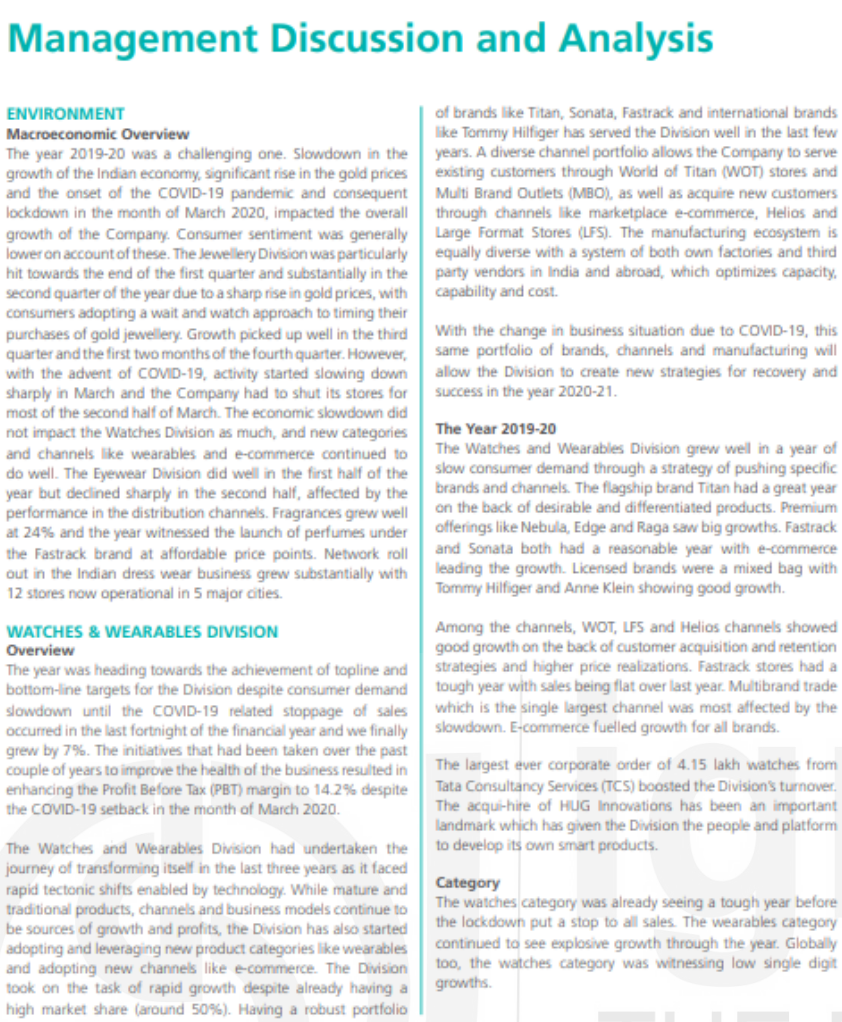

ENVIRONMENT
Reducing energy consumption and GHG emissions
Achieving circular economy and resource efficiency
Monitoring water sourcing practices and reducing water consumption at plants and across the value chain
SOCIAL
Engaging with the network of suppliers and dealers and raising awareness on ESG aspects, health and safety parameters and technical factors
Ensuring employee health and safety
Providing a diverse and inclusive workplace
Empowering communities with interventions in health, education, skill development and rural development, among others
GOVERNANCE
Ensuring compliance by introducing supportive policies and appropriate monitoring systems
Industry recognition
Ranked among the top 10 companies at the Responsible Business Rankings 2019
Emerged as a 'Leader' according to the benchmark report by the Global Child Forum & Boston Consulting Group titled 'The State of Children's Rights and Business 2019'
Selected on DJSI 2019
Received the Golden Peacock Occupational Health & Safety Award 2019

Figure 8b: Snapshot of ESG reporting of Tata Motors Limited

viii) Management Discussion and Analysis

This section is perhaps one of the most important sections in the whole of Annual Report. The most standard way for any company to start this section is by talking about the macro trends in the economy. They discuss the overall economic activity of the country and the business sentiment across the corporate world. If the company has high exposure to exports, they even talk about global economic and business sentiment. Following this, the companies usually talk about industry trends and what they expect for the year ahead. This is an important section as we can understand what the company perceives as threats and opportunities in the industry. Remember, until this point, the discussion in the Management Discussion and Analysis is broad-based and generic (global economy, domestic economy, and industry trends). However, in the future, the company would discuss various aspects related to its business. It talks about how the business had performed across various divisions, how it fares compared to the previous year, etc.



Management Discussion and Analysis

ENVIRONMENT

Macroeconomic Overview

The year 2019-20 was a challenging one. Slowdown in the growth of the Indian economy, significant rise in the gold prices and the onset of the COVID-19 pandemic and consequent lockdown in the month of March 2020, impacted the overall growth of the Company. Consumer sentiment was generally lower on account of these. The Jewellery Division was particularly hit towards the end of the first quarter and substantially in the second quarter of the year due to a sharp rise in gold prices, with consumers adopting a wait and watch approach to timing their purchases of gold jewellery. Growth picked up well in the third quarter and the first two months of the fourth quarter. However, with the advent of COVID-19, activity started slowing down sharply in March and the Company had to shut its stores for most of the second half of March. The economic slowdown did not impact the Watches Division as much, and new categories and channels like wearables and e-commerce continued to do well. The Eyewear Division did well in the first half of the year but declined sharply in the second half, affected by the performance in the distribution channels. Fragrances grew well at 24% and the year witnessed the launch of perfumes under the Fastrack brand at affordable price points. Network roll out in the Indian dress wear business grew substantially with 12 stores now operational in 5 major cities.

WATCHES & WEARABLES DIVISION

Overview

The year was heading towards the achievement of topline and bottom-line targets for the Division despite consumer demand slowdown until the COVID-19 related stoppage of sales occurred in the last fortnight of the financial year and we finally grew by 7%. The initiatives that had been taken over the past couple of years to improve the health of the business resulted in enhancing the Profit Before Tax (PBT) margin to 14.2% despite the COVID-19 setback in the month of March 2020.

The Watches and Wearables Division had undertaken the journey of transforming itself in the last three years as it faced rapid tectonic shifts enabled by technology. While mature and traditional products, channels and business models continue to be sources of growth and profits, the Division has also started adopting and leveraging new product categories like wearables and adopting new channels like e-commerce. The Division took on the task of rapid growth despite already having a high market share (around 50%). Having a robust portfolio of brands like Titan, Sonata, Fastrack and international brands like Tommy Hilfiger has served the Division well in the last few years. A diverse channel portfolio allows the Company to serve existing customers through World of Titan (WOT) stores and Multi Brand Outlets (MBO), as well as acquire new customers through channels like marketplace e-commerce, Helios and Large Format Stores (LFS). The manufacturing ecosystem is equally diverse with a system of both own factories and third party vendors in India and abroad, which optimizes capacity, capability and cost.

With the change in business situation due to COVID-19, this same portfolio of brands, channels and manufacturing will allow the Division to create new strategies for recovery and success in the year 2020-21.

The Year 2019-20

The Watches and Wearables Division grew well in a year of slow consumer demand through a strategy of pushing specific brands and channels. The flagship brand Titan had a great year on the back of desirable and differentiated products. Premium offerings like Nebula, Edge and Raga saw big growths. Fastrack and Sonata both had a reasonable year with e-commerce leading the growth. Licensed brands were a mixed bag with Tommy Hilfiger and Anne Klein showing good growth.

Among the channels, WOT, LFS and Helios channels showed good growth on the back of customer acquisition and retention strategies and higher price realizations. Fastrack stores had a tough year with sales being flat over last year. Multibrand trade which is the single largest channel was most affected by the slowdown. E-commerce fuelled growth for all brands.

The largest ever corporate order of 4.15 lakh watches from Tata Consultancy Services (TCS) boosted the Division's turnover. The acqui-hire of HUG Innovations has been an important landmark which has given the Division the people and platform to develop its own smart products.

Category

The watches category was already seeing a tough year before the lockdown put a stop to all sales. The wearables category continued to see explosive growth through the year. Globally too, the watches category was witnessing low single digit growths.

Figure 9: Snapshot of Management Discussion and Analysis section of Titan Company

b) Non-narrative items

Within non-narrative items in the annual report are: Financial highlights, highlights of the year and shareholder information.

i) Financial highlights

Financial highlights include year on year comparison of revenue from operations, EBITDA (Earnings before Interest, Tax, Depreciation and Amortization), ROE (Return on Equity) and PAT (Profit after Tax) for the financial years 2018-19 and 2019-20

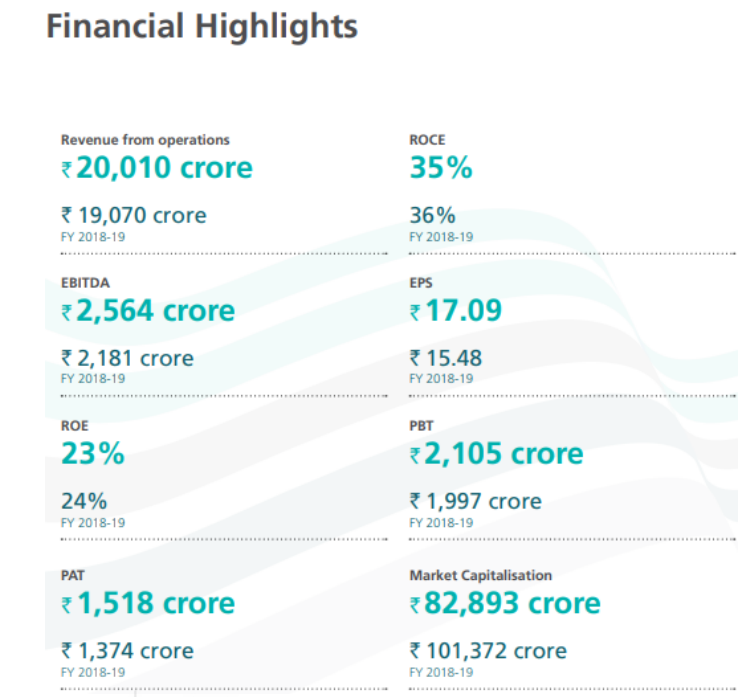


Figure 10: Snapshot of financial highlights of Titan Company

ii) Highlights of the year

It includes other than financial highlights, for instance, launching new products, brands, opening new showrooms and the like.

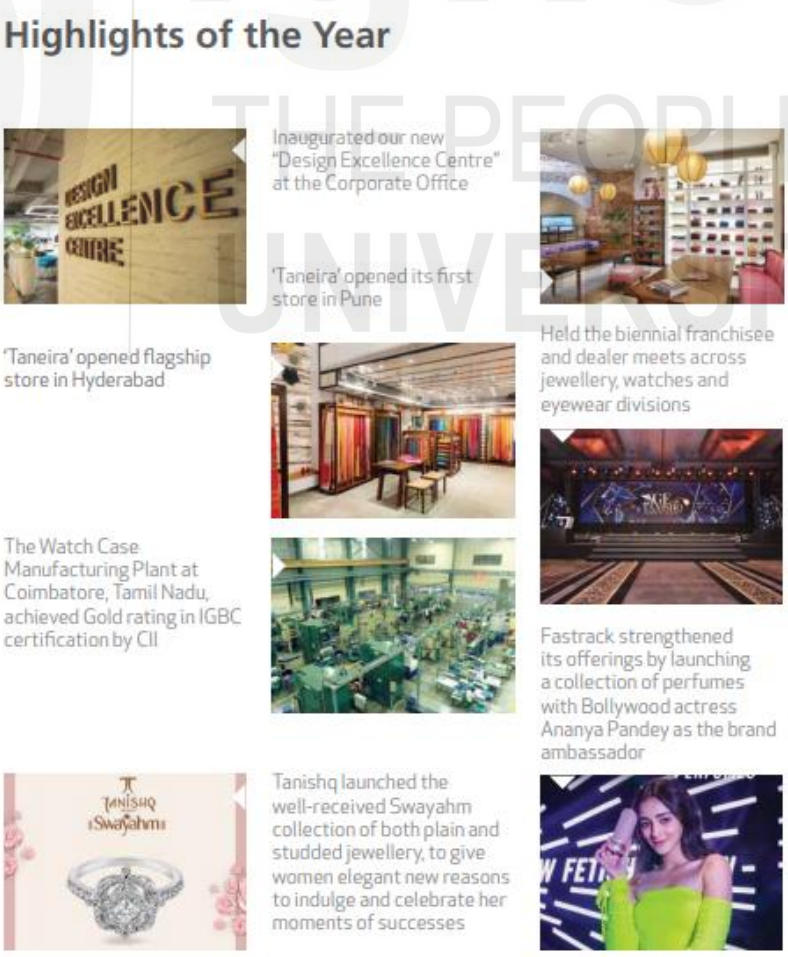

Highlights of the Year
DESIGN EXCELLENCE CENTRE
Inaugurated our new "Design Excellence Centre" at the Corporate Office
'Taneira' opened its first store in Pune
'Taneira' opened flagship store in Hyderabad
Held the biennial franchisee and dealer meets across jewellery, watches and eyewear divisions
The Watch Case Manufacturing Plant at Coimbatore, Tamil Nadu, achieved Gold rating in IGBC certification by CII
Fastrack strengthened its offerings by launching a collection of perfumes with Bollywood actress Ananya Pandey as the brand ambassador
TANISHQ
Swayahm
Tanishq launched the well-received Swayahm collection of both plain and studded jewellery, to give women elegant new reasons to indulge and celebrate her moments of successes

Figure 11: Snapshot of highlights of the year of Titan Company

2) Financial Statements

There are three financial statements discussed in the annual report, namely, a) Balance Sheet, b) Profit and Loss account and c) Cash flow statement

a) Balance Sheet

A balance sheet is a statement of the resources owned and controlled by a business at a single point in time**.** It gives a snapshot of assets, liabilities and capital at a point in time**.** It provides information about the company's funds and how they are used in the business. Balance sheet which is also known as position statement provides a bird's eye view on company's financial position as well as condition. This statement indicates whatever company has and whatever company owes. The excess of assets over liabilities is known as owners equity/shareholders funds.

in ₹ crore

Particulars	Note no.	As at March 31, 2020	2019
Assets			
Non-current assets			
Property, plant and equipment	2.2	12,435	11,479
Right-of-use assets	2.19	4,168	–
Capital work-in-progress		954	1,388
Goodwill	2.3.1 and 2.1	5,286	3,540
Other intangible assets	2.3.2	1,900	691
Financial assets			
Investments	2.4	4,137	4,634
Loans	2.5	21	19
Other financial assets	2.6	737	312
Deferred tax assets (net)	2.15	1,744	1,372
Income tax assets (net)	2.15	5,384	6,320
Other non-current assets	2.9	1,426	2,105
Total non-current assets		38,192	31,860
Current assets			
Financial assets			
Investments	2.4	4,655	6,627
Trade receivables	2.7	18,487	14,827
Cash and cash equivalents	2.8	18,649	19,568
Loans	2.5	239	241
Other financial assets	2.6	5,457	5,505
Income tax assets (net)	2.15	7	423
Other current assets	2.9	7,082	5,687
Total current assets		54,576	52,878
Total assets		92,768	84,738
Equity and liabilities			
Equity			
Equity share capital	2.11	2,122	2,170
Other equity		63,328	62,778
Total equity attributable to equity holders of the Company		65,450	64,948
Non-controlling interests		394	58
Total equity		65,844	65,006
Liabilities			
Non-current liabilities			
Financial liabilities			
Lease liabilities	2.19	4,014	–
Other financial liabilities	2.12	807	147
Deferred tax liabilities (net)	2.15	968	672
Other non-current liabilities	2.13	279	275
Total non-current liabilities		6,068	1,094
Current liabilities			
Financial liabilities			
Trade payables		2,852	1,655
Lease liabilities	2.19	619	–
Other financial liabilities	2.12	10,481	10,452
Other current liabilities	2.13	4,842	4,388
Provisions	2.14	572	576
Income tax liabilities (net)	2.15	1,490	1,567
Total current liabilities		20,856	18,638
Total equity and liabilities		92,768	84,738

Figure 12: Snapshot of Consolidated Balance Sheet of Infosys Limited

b) Profit and loss account

The Profit and Loss Account is a statement which shows total business revenue less expenses. The P&L account quantifies and explains the gains or losses of the company over the period of time bounded by two balance sheets. It provides a summary of the year's trading activities: revenue from sales (turnover), business cost, and profit or (loss). The profit and loss account which is also known as Income Statement indicates net profits earned by company during current financial year. Income statement also indicates profits available for distribution and appropriation after meeting tax liabilities. Profit and Loss Appropriation Account or Retained Earnings Account is also submitted with profit and loss account which indicates appropriations made during the period.

Consolidated Statement of Profit and Loss

in ₹ crore, except equity share and per equity share data

Particulars	Note no.	Years ended March 31, 2020	2019
Revenue from operations	2.16	90,791	82,675
Other income, net	2.17	2,803	2,882
Total income		93,594	85,557
Expenses			
Employee benefit expenses	2.18	50,887	45,315
Cost of technical sub-contractors		6,714	6,033
Travel expenses		2,710	2,433
Cost of software packages and others	2.18	2,703	2,553
Communication expenses		528	471
Consultancy and professional charges		1,326	1,324
Depreciation and amortization expenses	2.2 and 2.3.2	2,893	2,011
Finance cost	2.19	170	–
Other expenses	2.18	3,656	3,655
Reduction in the fair value of disposal group held for sale	2.1.2	–	270
Adjustment in respect of excess of carrying amount over recoverable amount on reclassification from "Held for Sale"	2.1.2	–	451
Total expenses		71,587	64,516
Profit before tax		22,007	21,041
Tax expense			
Current tax	2.15	5,775	5,727
Deferred tax	2.15	(407)	(96)
Profit for the year		16,639	15,410
Other comprehensive income			
Items that will not be reclassified subsequently to profit or loss			
Remeasurement of the net defined benefit liability / asset, net	2.20 and 2.15	(180)	(22)
Equity instruments through other comprehensive income, net	2.4 and 2.15	(33)	70
		(213)	48
Items that will be reclassified subsequently to profit or loss			
Fair value changes on derivatives designated as cash flow hedge, net	2.10 and 2.15	(36)	21
Exchange differences on translation of foreign operations		378	63
Fair value changes on investments, net	2.4 and 2.15	22	2
		364	86
Total other comprehensive income / (loss), net of tax		151	134
Total comprehensive income for the period		16,790	15,544

Figure 13: Snapshot of Consolidated Statement of Profit and Loss of Infosys Limited

c) Cash flow statement

- This is a statement which shows the flow of cash into and out of the business
- It is not the same as a profit and loss account
- The cash flow statement only records movements of cash and, for example, does not include credit sales or purchases until such time as cash actually flows

- This statement became mandatory because of some high profile business failures of the 1980s/90s - these were companies that, in terms of the P&L, were profitable but were short of cash to pay their debts
- The cash flow statement should not be confused with a cash flow forecast. The former is historical whereas the latter is a forecast about the future

in ₹ crore

Particulars	Note no.	Years ended March 31, 2020	2019
Cash flow from operating activities			
Profit for the period		16,639	15,410
Adjustments to reconcile net profit to net cash provided by operating activities			
Income tax expense	2.15	5,368	5,631
Depreciation and amortization	2.2 and 2.3.2	2,893	2,011
Interest and dividend income		(1,613)	(2,052)
Finance cost	2.19	170	–
Impairment loss recognized / (reversed) under expected credit loss model		161	239
Exchange differences on translation of assets and liabilities		184	66
Reduction in the fair value of disposal group held for sale	2.1.2	–	270
Adjustment in respect of excess of carrying amount over recoverable amount on reclassification from "Held for Sale"	2.1.2	–	451
Stock compensation expense	2.11	249	202
Other adjustments		(131)	(102)
Changes in assets and liabilities			
Trade receivables and unbilled revenue		(3,861)	(2,881)
Loans, other financial assets and other assets		76	(700)
Trade payables		(373)	916
Other financial liabilities, other liabilities and provisions		1,791	2,212
Cash generated from operations		21,553	21,673
Income taxes paid		(4,550)	(6,832)
Net cash generated by operating activities		17,003	14,841
Cash flows from investing activities			
Expenditure on property, plant and equipment		(3,307)	(2,445)
Loans to employees		–	14
Deposits placed with corporation		(108)	(24)
Interest and dividend received		1,929	1,557
Payment towards acquisition of business, net of cash acquired		(1,860)	(550)
Payment of contingent consideration pertaining to acquisition of business		(6)	(18)
Advance payment towards acquisition of business		–	(206)
Redemption of escrow pertaining to buyback	2.6	257	(257)
Other receipts		46	–
Payments to acquire investments			
Preference, equity securities and others		(41)	(21)
Tax-free bonds and government bonds		(19)	(17)
Liquid mutual funds and fixed maturity plan securities		(34,839)	(78,355)
Non-convertible debentures		(993)	(160)
Certificates of deposit		(1,114)	(2,393)
Government securities		(1,561)	(838)
Commercial paper		–	(491)
Others		(29)	(19)
Proceeds on sale of financial assets			
Tax-free bonds and government bonds		87	1
Non-convertible debentures		1,888	738
Government securities		1,674	123
Commercial paper		500	300

Certificates of deposit		2,545	5,540
Liquid mutual funds and fixed maturity plan securities		34,685	76,821
Preference and equity securities		27	115
Others		–	10
Net cash (used in) / from investing activities		(239)	(575)
Cash flows from financing activities			
Payment of lease liabilities	2.19	(571)	–
Payment of dividends (including dividend distribution tax)		(9,515)	(13,705)
Payment of dividend to non-controlling interest of subsidiary		(33)	–
Shares issued on exercise of employee stock options		6	6
Buyback of equity shares including transaction cost		(7,478)	(813)
Net cash used in financing activities		(17,591)	(14,512)
Net increase / (decrease) in cash and cash equivalents		(827)	(246)
Cash and cash equivalents at the beginning of the period	2.8	19,568	19,871
Effect of exchange rate changes on cash and cash equivalents		(92)	(57)
Cash and cash equivalents at the end of the period	2.8	18,649	19,568

Figure 14: Snapshot of Consolidated Statement of Cash Flows of Infosys Limited

3) Notes to the accounts

Provides a more detailed analysis of some of the entries in the accounts including:

- Disclosure of accounting policies used (e.g. depreciation) and any changes to these policies
- Inventories
- Sources of turnover from different product segments
- Details of fixed assets and share capital
- Directors' emoluments (how much the Directors earned)
- Earnings per share

In this part, we will look at some of the important notes to the accounts sourcing the same from Titan Company's Annual Report 2019-20.

i) Depreciation

Depreciable amount for assets is the cost of an asset, or other substituted for cost, less its estimated residual value. Depreciation is calculated on the basis of the estimated useful lives using the **straight line method** and is generally recognized in the statement of consolidated profit and loss. Depreciation for assets purchased / sold during the year is proportionately charged from/up to the date of disposal. Free hold land is not depreciated.

The estimated useful lives of items of property, plant and equipment for the current and comparative periods are as follows:

Asset category	**Management estimate of useful life**	**Useful life as per Schedule II**
Building	30 to 60 years	30 to 60 years
Plant, machinery and equipment	5 to 15 years	10 to 15 years
Computers and server	3 to 6 years	3 to 6 years
Furniture and Fixtures	5 to 10 years	10 years
Office equipment	5 years	5 years
Vehicles	4 to 5 years	8 years

Leasehold improvements are depreciated over the lease term ranging from 1-9 years.

ii) Inventories

Inventories [other than quantities of gold for which the price is yet to be determined with the suppliers (Unfixed gold)] are stated at the lower of cost and net realizable value determined on an item-by-item basis. Cost is determined as follows:

a) Gold is valued on first-in-first-out basis.

b) Stores and spares, loose tools and raw materials are valued on a moving weighted average rate.

c) Work-in-progress and finished goods (other than gold) are valued on full absorption cost method based on the moving average cost of production.

d) Traded goods are valued on a moving weighted average rate/ cost of purchases.

Cost comprises all costs of purchase including duties and taxes (other than those subsequently recoverable by the Group), freight inwards and other expenditure directly attributable to acquisition. Work-in-progress and finished goods include appropriate proportion of overheads and, where applicable, other taxes. Unfixed gold is valued at the provisional gold price prevailing on the date of delivery of gold. Net realizable value represents the estimated selling price for inventories less estimated costs of completion and costs necessary to make the sale.

iii) Revenue from operations

In this note, sources of revenue from different product segments like watches, jewellery, eyes wear and others are stated.

₹ in lakhs

Particulars	For the year ended 31 March 2020	For the year ended 31 March 2019
Revenue from operations		
Sale of products		
Manufactured goods		
Watches	203,004	191,782
Jewellery	1,373,083	1,300,097
Eyewear	8,558	8,400
Others	45,419	33,899
	1,630,064	**1,534,178**

iv) Details of fixed assets and share capital

Fixed assets: Land and buildings held for use in the production or supply of goods or services, or for administrative purposes, are stated at cost less accumulated depreciation and accumulated impairment losses. Freehold land is not depreciated. Property, plant and equipment are carried at cost less accumulated depreciation and impairment losses, if any. The cost of property, plant and equipment comprises its purchase price/ acquisition cost, net of any trade discounts and rebates, any import duties and other taxes (other than

those subsequently recoverable from the tax authorities), any directly attributable expenditure on making the asset ready for its intended use, other incidental expenses and interest on borrowings attributable to acquisition of qualifying property, plant and equipment up to the date the asset is ready for its intended use. Machine spare parts are recognized in accordance with this Ind AS (Indian Accounting Standard) when they meet the definition of property, plant and equipment; otherwise, such items are classified as inventory. Subsequent expenditure on property, plant and equipment after its purchase / completion is capitalized only if such expenditure results in an increase in the future benefits from such asset beyond its previously assessed standard of performance. The estimated useful life of the tangible assets and the useful life are reviewed at the end of the each financial year and the depreciation period is revised to reflect the changed pattern, if any. An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from continued use of the asset. Any gain or loss arising on the disposal or retirement of an item of property, plant and equipment is determined as the difference between the sales proceeds and the carrying amount of the asset and is recognized in the statement of consolidated profit and loss.

₹ in lakhs

Particulars	Land	Buildings	Plant, machinery and equipment	Computer and servers	Leasehold improvements	Furniture and fixtures	Office equipment	Vehicles	Total
Owned assets									
As at 1 April 2018	8,530	33,577	56,349	7,219	523	20,330	3,414	1,634	131,576
Additions	-	4,799	8,737	2,128	117	5,957	1,712	950	24,400
Deletion due to sale of subsidiary*	-	317	992	-	-	14	24	7	1,354
Disposals	-	2	1,134	156	70	1,159	142	380	3,043
As at 31 March 2019	**8,530**	**38,057**	**62,960**	**9,191**	**570**	**25,114**	**4,960**	**2,197**	**151,579**
As at 1 April 2019	8,530	38,057	62,960	9,191	570	25,114	4,960	2,197	151,579
Additions	-	3,031	9,296	3,178	273	7,729	2,248	1,178	26,933
Disposals	-	2	1,042	508	100	1,505	221	612	3,990
As at 31 March 2020	**8,530**	**41,086**	**71,214**	**11,861**	**743**	**31,338**	**6,987**	**2,763**	**174,522**
Accumulated depreciation									
As at 1 April 2018	-	1,945	9,325	1,570	188	6,408	1,511	425	21,372
Depreciation expense	-	1,001	6,305	2,088	180	3,860	770	595	14,799
Deletion due to sale of subsidiary*	-	40	301	-	-	3	16	3	363
Disposals	-	1	835	142	69	964	105	344	2,460
As at 31 March 2019	**-**	**2,905**	**14,494**	**3,516**	**299**	**9,301**	**2,160**	**673**	**33,348**
As at 1 April 2019	-	2,905	14,494	3,516	299	9,301	2,160	673	33,348
Depreciation expense	-	1,126	6,031	2,439	147	4,441	1,053	742	15,979
Disposals	-	1	825	483	86	1,233	188	515	3,331
As at 31 March 2020	**-**	**4,030**	**19,700**	**5,472**	**360**	**12,509**	**3,025**	**900**	**45,996**
Net carrying value									
As at 31 March 2019	**8,530**	**35,152**	**48,466**	**5,675**	**271**	**15,813**	**2,800**	**1,524**	**118,231**
As at 31 March 2020	**8,530**	**37,056**	**51,514**	**6,389**	**383**	**18,829**	**3,962**	**1,863**	**128,526**

Share capital: The share capital is categorized into two types, namely, authorized share capital and issued share capital. So, what is the difference between the two? Authorized share capital is the maximum extent of funding that can be raised through issue of shares. It is laid out in the company's charter documents. Issued and paid up share capital is the part of authorized share capital against which shares have been issued to share holders of a company against full payment

Particulars	As at 31 March 2020		As at 31 March 2019	
	No. of shares (in lakhs)	Amount	No. of shares (in lakhs)	Amount
a) Authorised				
Equity share of ₹ 1 each with voting rights	12,000	12,000	12,000	12,000
Redeemable cumulative preference shares of ₹ 100 each	40	4,000	40	4,000
b) Issued, subscribed and fully paid up				
Equity share of ₹ 1 each with voting rights	8,878	8,878	8,878	8,878

v) Directors' emoluments

The information required under Section 197 of the Act read with Rule 5(1) of the Companies (Appointment and Remuneration of Managerial Personnel) Rules, 2014 are given below:

Sl. No.	Name of the Director	Ratio (times)	% change
A]	**Director's remuneration**		
1	Mr. N Muruganandam	4.57	-28.64
2	Mr. Arun Roy	4.86	NA*
3	Mr. Ramesh Chand Meena[1]	2.50	NA*
4	Ms. Kakarla Usha[2]	1.07	NA*
5	Mr. N. N. Tata[3]	3.86	-15.25
6	Mr. Harish Bhat[3]	4.04	NA*
7	Mr. T. K. Balaji[4]	2.10	NA*
8	Ms. Hema Ravichandar	9.92	5.90
9	Ms. Ireena Vittal	8.81	-4.11
10	Mr. Ashwani Puri	7.57	-15.25
11	Mr. B Santhanam	6.06	19.65
12	Mr. Pradyumna Vyas	3.65	NA*
13	Dr. Mohanasankar Sivaprakasam[5]	3.12	NA*
14	Mr. Bhaskar Bhat[6] - as Managing Director	86.65	NA*
15	Mr. Bhaskar Bhat[7] - as Non-Executive Director	2.68	NA*
16	Mr. C K Venkataraman[8]	51.48	NA*
B]	**Key Managerial Personnel**		
17	Mr. S Subramaniam	-	19
18	Mr. Dinesh Shetty	-	12

The above snapshot shows the ratio of the remuneration of each director to the median remuneration of the employees of the company and the percentage increase in remuneration of each Director, Managing Director, Chief Financial Officer and Company Secretary in the financial year.

vi) Earnings per share

Basic Earnings Per Share ('EPS') is computed by dividing the net profit attributable to the equity shareholders by the weighted average number of equity shares outstanding during the year. Diluted earnings per share is computed by dividing the net profit by the weighted average number of equity shares considered for deriving basic earnings per share and also the weighted average number of equity shares that could have been issued upon conversion of all dilutive potential equity shares. Dilutive potential equity shares are deemed converted as of the beginning of the year, unless issued at a later date. In computing diluted earnings per share, only potential equity shares that are dilutive and that either reduces earnings per share or increases loss per share are included.

The following table sets forth the computation of basic and diluted earnings per share:

Particulars	For the year ended 31 March 2020	For the year ended 31 March 2019
Profit for the year (₹ lakhs)	150,139	140,415
Weighted average number of equity shares	887,786,160	887,786,160
Nominal value of shares (₹)	1	1
Earnings per share - Basic and diluted (₹)	**16.91**	**15.82**

4) Accounting policies

- Companies must describe the accounting policies they use in preparing financial statements
- Companies have a choice of accounting policies in many areas such as foreign currencies, goodwill, pensions, sales and stocks
- As different accounting policies will result in different figures it is necessary to state the policy that was used so that readers of the accounts can make an informed judgment about performance
- It is also important to state the effect of any changes in accounting policies – restating prior year numbers where this is materially significant

12.3 DIFFERENCE BETWEEN ANNUAL REPORTS OF PUBLIC COMPANY AND PRIVATE COMPANY

An annual report may look different depending on whether the company in question is private or public.

The three main differences are:

- First, in case of private companies, the annual report is prepared following section 134 and other applicable provisions of Companies Act, 2013, whereas for public companies, the annual report is prepared following the aforementioned as well as regulations 32, 34 and Schedule V of SEBI's LODR (Listing Obligations and Disclosure Requirements) regulations.
- Second, the annual report for a private company — one whose stock isn't traded on the open market — is usually a document that gives users just the mandatory information about how the company performed in the past year. That's because most private companies are closely held (they have a small number of owners), so they aren't too concerned about how a larger audience will react to the report. On the other hand, a public company's report is often loaded with bells and whistles, such as marketing material designed to tout the company to potential investors and creditors.
- Third, the annual report for a private company doesn't always have its financial statements audited, while public companies do. A private company usually has its financial statements audited only if doing so is required to fulfil a business purpose.

12.4 ANNUAL REPORT FOR A GOVERNMENT COMPANY

1) Where the Central Government is a member of a Government company, the Central Government shall cause an annual report on the working and affairs of that company to be—

   a) prepared within three months of its annual general meeting before which the comments given by the Comptroller and Auditor-General of India and the audit report is placed under the proviso to sub-section (6) of section 143; and

   b) as soon as may be after such preparation, laid before both Houses of Parliament together with a copy of the audit report and comments upon or supplement to the audit report, made by the Comptroller and Auditor-General of India.

2) Where in addition to the Central Government, any State Government is also a member of a Government company, that State Government shall cause a copy of the annual report prepared under sub-section (1) to be laid before the House or both Houses of the State Legislature together with a copy of the audit report and the comments upon or supplement to the audit report referred to in sub-section (1).

12.5 GREEN ANNUAL REPORT

Just like the normal annual report, a green annual report is a comprehensive document that contains information on a company's financial position and performance over the preceding year. The major difference between a normal annual report and a green annual report is that the latter is printed using production processes that save energy, trees and water as well as reduce waste and greenhouse gases.

According to a 2005 survey that studied trends in annual reporting, the average number of pages in an annual report was 65, and the number of copies produced averaged between more than 5,000 to less than 50,000.

Green annual reports are frequently printed using eco-friendly soy inks. In comparison with traditional petroleum-based ink, soy inks are environmentally friendlier, are available in brighter colours, and make it easier to recycle paper.

An eco audit statement is placed in the final document that estimates the number of trees preserved, pounds of water-borne waste that was not created, number of gallons of waste-water flow saved, pounds of solid waste not generated, net pounds of greenhouse gases prevented and the amount of energy in million BTUs not consumed.

12.6 SUMMARY

- The Annual Report (AR) of a company is a comprehensive report on a company's activities throughout the preceding year intended to give

shareholders and other interested people information about the company's activities and financial performance. The AR is the best source to avail company information and hence the investors should choose AR to procure any data related to the company.

- The AR contains broadly four sections, namely, 1) Non-audited information, 2) Financial statement, 3) Notes to the accounts and 4) Accounting policies. The AR contains three financial statements – Profit & Loss Statement, Balance Sheet, and Cash Flow statement.
- The standalone statement is made of the financial numbers of only the company into consideration, whereas, the consolidated numbers reflect the company and its subsidiaries' financial data.
- The AR is also the best source to get information related to the qualitative as well as quantitative aspects of the company.
- The management discussion and analysis sections in the AR has the management's perspective on the country's overall economy, their outlook on the industry they operate in for the year gone by (what went right and what went wrong), and what they foresee for the year ahead.
- Comparing the annual reports of public company and private company, there are three main differences: 1) In case of private companies, the annual report is prepared following section 134 and other applicable provisions of Companies Act, 2013, whereas for public companies, the annual report is prepared following the aforementioned as well as regulations 32, 34 and Schedule V of SEBI's LODR regulations, 2) The annual report for a private company is usually a document that gives users just the mandatory information about how the company performed in the past year whereas a public company's annual report is often loaded with bells and whistles, such as marketing material designed to tout the company to potential investors and creditors and 3) The annual report for a private company doesn't always have its financial statements audited, while public companies do.
- Green annual report is another interesting aspect to study. It is just like the normal annual report but is printed using production processes that save energy, trees and water as well as reduce waste and greenhouse gases.

12.7 KEY WORDS

Annual report is a document that publicly traded (or listed) companies must provide annually to shareholders. It describes the company's operations and financial performance/position in a detailed manner, contains images and graphics coupled with an accompanying narrative, all of which highlight the company's activities over the past year and provide information regarding the company's forecasts.

Auditor is a person authorized to review and verify the accuracy of financial records and ensure that companies comply with tax laws.

Board of directors is an elected group of individuals that represent shareholders. The board is a governing body that typically meets at regular intervals to set policies for corporate management and oversight.

Corporate governance is the combination of rules, processes or laws by which businesses are operated, regulated or controlled. It encompasses the internal and external factors that affect the interests of a company's stakeholders such as shareholders, customers, suppliers, government regulators and management.

ESG refers to the three central factors, namely, environmental, social and governance, in measuring the sustainability and societal impact of an investment in a company or business.

Green Annual Report is an annual report on a company's financial status that is printed using production processes that save energy, trees, water, and also reduce waste and greenhouse gases.

12.8 SELF-ASSESSMENT QUESTIONS

Download the 2018-19 annual report of Dabur India Ltdby clicking on the hyperlink. Refer to the annual report and answer the following questions:

1) Who is the Chairman of the company?
2) Who is the internal auditor of the company?
3) In which state does the company have its corporate office?
4) As of 2018-19, what percentage of the revenue is earned from the domestic market?
5) How much revenue from operations was generated by the company in 2018-19?
6) What is the percentage of female employees in the company?
7) In 2018-19, how much amount was spent on reducing environmental footprint?
8) What was the amount spent on CSR activities in 2018-19?
9) What was the Profit before Tax (consolidated) in 2017-18?
10) What was the expense incurred on depreciation and amortization (consolidated) in 2018-19?
11) Which method is used to calculate depreciation?
12) What is the percentage of shareholding of Foreign Portfolio Investors in the company as of March 31, 2019?
13) What is the value of Goodwill (consolidated) as of March 31, 2018?
14) What is the total current liability (consolidated) as of March 31, 2019?
15) What is the expense incurred on advertising and publicity (consolidated) as of March 31, 2019?
16) What is the net cash flow from operating activities (consolidated) as of

March 31, 2019?

17) What is the net cash flow from investing activities (consolidated) as of March 31, 2019?

18) What is the net cash used in financing activities (consolidated) as of March 31, 2019?

19) What is the percentage of independent directors in the company?

20) How many female directors are there on the board of the company?

21) Interim Dividend per equity share fully paid up on November 22, 2018 for the financial year 2018-19.

22) What is the percentage of shareholders holding less than 5000 equity shares as of March 31, 2019?

23) What is the percentage of share holding of promoter and promoter group as of March 31, 2019?

24) Who is the statutory auditor of the company?

25) In 2018-19, receivables went up to how many days of sales?

26) What is the percentage of executive directors in the board of directors?

27) Which committee reviews/examines the quarterly/year to date financial statements and auditor's report thereon, before submission to the Board for approval?

28) Who is the Chairman of the audit committee?

29) Which committee formulates the criteria for evaluation of Director's and Board's performance?

30) Which committee monitors the CSR Policy of the company from time to time?

31) How many listed subsidiaries does Dabur have?

32) Who is the secretarial auditor?

33) Instrument valued at fair value through other comprehensive income ('FVOCI')

34) Total inventory in Standalone Balance sheet as of March 31, 2019

35) Net cash flow from/ (used in) investing activities in Standalone Cash Flow statement as of March 31, 2019

36) In calculation of depreciation, what is the useful life of the asset "Vehicles" that is taken into consideration?

37) Net fair value loss on investment in debt instruments through OCI as of March 31, 2019

38) Which geographical region accounts for the maximum percentage of Dabur's international business?

39) What is the growth in PAT (%) in 2018-19 from 2017-18?

40) In how many strategic locations (including India and abroad) does Dabur have its manufacturing units?

Answers to self-assessment questions

1. AmitBurman 2. Pricewaterhouse Coopers (PwC) 3. Uttar Pradesh 4. 69.4% 5. Rs. 8533 crore 6.6% 7.Rs. 4 crore 8.Rs. 26.35 crore 9.Rs. 1707.4 crore 10.Rs. 176.9 crore 11.Straight line method 12.18.21% 13.Rs. 411.54 crore 14. 2660.31 crore 15. Rs. 608.33 crore 16. 1499.13 crore 17. Rs. 336.91 crore 18.Rs. (1888.20) crore 19.50% 20.1 21.Rs. 1.25 22.98% 23.68% 24. Walker Chandiok& Co LLP 25. 36 26.21% 27.Audit committee 28. Mr. P N Vijay 29. Nomination and Remuneration committee 30.CSR committee 31.1 32.Chandrasekaran Associates 33.Bonds 34.Rs. 733 crore 35.Rs. 417 crore 36. 8 years 37. Rs. 5 crore 38.Middle East 39. 6.5% 40. 20

12.9 FURTHER READINGS (USE LATEST EDITION)

- Raithatha M and Bapat V. (2017). Financial Accounting a Managerial Perspective, McGraw Hill Education, Delhi.
- Maheshwari, S.N. and Maheshwari, S.K. (2019). Management Accounting. VikasPubliations. New Delhi

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UNIT13 RATIO ANALYSIS

Objective

- Understand the meaning and rationale of ratio analysis
- Provide a broad classification of ratios
- Identify ratios which are appropriate for control of particular activity
- Discuss and interpret various ratios

Structure

13.1 Introduction

13.2 Type of Ratios

13.3 Profitability Ratios:

13.4 Liquidity Ratios

13.5 Leverage Ratios

13.6 Coverage Ratios

13.7 Efficiency (or Activity) Ratios

13.8 Investment Ratios (or Valuation Ratios)

13.9 Summary

13.10 Keywords

13.11 Self Assessment Questions

13.12 Additional Readings

13.1 INTRODUCTION

The financial information relating to any business firm is included in the three fundamental financial statements – the Balance Sheet, Income Statement (or Profit & Loss Account), and Cash flow statement. The Balance sheet focuses on the resources (or Assets) that are at the firm's disposal and the obligations (or Liabilities) of the business firm. It is, thus, a statement of what the firm 'owns' and what the firm 'owes', as on a particular date. The Balance sheet is a 'snapshot' of the assets and liabilities of the firm at a point in time. The Income Statement summarises the revenues earned, the expenses incurred to earn those revenues, and finally, the profits generated (or losses incurred) during an accounting year. The profit is the surplus of revenues over the expenses incurred. It thus depicts the profitability position of a firm during an accounting period. The third financial statement prepared is the Cash flow statement, which reflects the sources and uses of cash or the flow of cash during an accounting period. It is also called the statement of changes in Financial Position.

These financial statements summarise the transactions carried by a business enterprise over an accounting period in financial terms. These financial

statements need to be analysed to gain better insights into the strengths and weaknesses of the firm. Such an analysis is undertaken by establishing relationships between different items of the balance sheet, income statement and cash flow statement. Besides the management, other stakeholders interested in such an analysis are the shareholders, prospective investors, creditors, customers, suppliers, lenders, and the government. Shareholders and the prospective investor want to know if the money they have invested or intend to invest would grow in value over a period of time or not. Creditors who have lent funds want to know if the money they have lent to the firm is safe or not. Even employees who work for the firm want to know if the company is profitable or not so that they receive the compensation and other benefits regularly. The government also wants to know if the firm would be able to pay taxes or not. One of the ways to do find answers to such concerns is by conducting a Ratio Analysis.

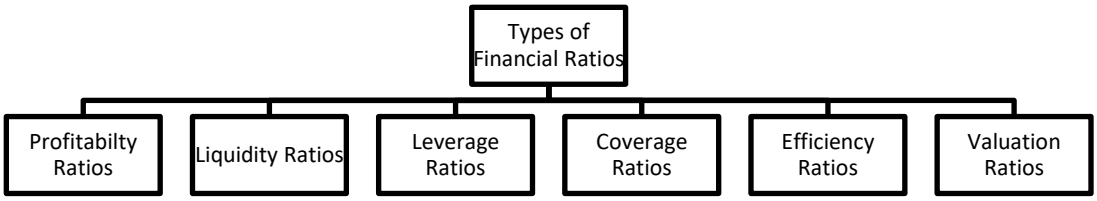
Ratio Analysis:

Ratio analysis is an important tool used in the analysis of financial statements. A ratio is simply the relationship between any two or more things. In the context of financial statements, when any two or more items of the financial statements are expressed as a ratio, it is called a financial ratio. We can comment on the performance of a student only when the marks obtained by him are seen in conjunction with the maximum marks. Similarly, to evaluate the performance of a firm, say in terms of its profits, just knowing the quantum of profits earned by the firm is not enough. We can comment on the performance only when the profits are compared with either the investment made or the sales.

13.2 TYPES OF RATIOS

Any business has many stakeholders. Different stakeholders in a business firm want to evaluate the financial performance of firms from their perspective. Shareholders or the owners want to evaluate if the business enterprise is profitable and financially strong or not. They want to know if the money invested by them has grown over the years or has the investment eroded. Short-term creditors and suppliers of raw materials want to know if the company would be able to repay the short-term credit, which they have provided. They are therefore interested in knowing about the short-term liquidity position of the firm

Similarly, lenders of long-term finance are interested in the long-term solvency and profitability of the firm. Management is interested in the overall performance of the firm. Thus, each stakeholder wants to examine and evaluate the financial statements from their perspective. Thus, we may categorise the financial ratios in the following categories:



As the name suggests, the profitability ratios assess the firm on its profit-earning capacity. The liquidity ratio measures the firm's ability to meet its short-term liabilities. Leverage ratios analyse the proportion of debt and equity in the firm's capital structure. The valuation ratios are used to value the investment made by the shareholders. These ratios are discussed in detail for which the following Balance sheet and the Income statement of a hypothetical firm are considered.

ABC Enterprises Limited

Balance Sheet

As on March 31, *(Rs. Lacs)*

		2016	2017	2018	2019	2020
A.	Liabilities:					
	Share Capital	374.56	374.56	374.56	374.56	374.56
	Reserves & Surplus	286.13	446.70	586.26	759.94	931.84
	Net worth	660.69	821.26	960.82	1,134.50	1,306.40
B.	Borrowings:					
	Long-Term Debentures	148.56	242.00	418.43	697.52	721.93
	Other Borrowings	461.55	697.89	788.16	768.37	1,175.48
	Short-Term Bank Borrowings	342.92	605.94	1,053.73	1,145.40	1,185.49
	Total Borrowings	953.03	1,545.83	2,260.32	2,611.29	3,082.90
C.	Total Liabilities (A + B)	1,613.72	2,367.09	3,221.13	3,745.79	4,389.30
D.	Fixed Assets:					
	Gross Block	653.49	1,154.72	2,008.05	2,182.75	2,259.15
	Less: Accumulated Depreciation	159.55	194.01	231.84	271.80	317.03
	Net Block	493.94	960.71	1,776.21	1,910.95	1,942.12
	Other Non-Current Assets	52.76	56.84	72.97	80.62	94.20
	Net Fixed Assets	546.70	1,017.55	1,849.18	1,991.57	2,036.32

E.	Current Assets					
	Raw Material	105.87	116.56	120.69	354.82	403.73
	Work-in-Progress	85.74	156.07	120.69	102.35	169.00
	Finished Goods	600.59	664.12	848.77	749.80	986.54
	Inventories	792.20	936.75	1,090.15	1,206.97	1,559.28
	Debtors	435.59	519.29	528.94	850.31	1,076.72
	Cash & Bank Balance	160.69	177.80	169.25	173.52	171.39
	Other Current Assets	28.27	86.21	92.45	125.76	157.34
	Current Assets	1,416.75	1,720.04	1,880.78	2,356.57	2,964.72
F.	Less: Current Liabilities:					
	Trade Creditors	226.86	199.53	305.94	354.82	356.78
	Provisions & Others	122.87	170.97	202.89	247.53	254.95
	Current Liabilities	349.73	370.50	508.83	602.35	611.74
G.	Net Current Assets (E-F)	1,067.02	1,349.54	1,371.95	1,754.22	2,352.98
H.	Total Assets	1,613.72	2,367.09	3,221.13	3,745.79	4,389.30
	Market Price per Share	114.60	176.65	223.85	229.25	335.25

ABC Enterprises Limited

Income Statement

For the Year ended March 31, *(Rs. Lacs)*

		2016	2017	2018	2019	2020
1	Sales (Net)	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
1	Raw Material	1,071.91	1,120.15	1,196.32	1,289.63	1,330.90
2	Direct Labour	138.38	170.53	154.45	166.49	171.82
3	Depreciation	33.07	34.46	37.84	39.95	45.23
4	Other Manufacturing Expenses	205.34	255.72	205.34	255.72	329.44
		1,448.71	1,580.86	1,593.94	1,751.80	1,877.39
5	Add: Opening Stock (WIP)	59.85	85.74	96.74	88.23	137.98
		1,508.56	1,666.60	1,690.68	1,840.03	2,015.37
6	Less: Closing Stock (WIP)					130.83

		85.74	76.55	96.74	97.55	
7	Cost of Production	1,422.82	1,590.05	1,593.94	1,742.48	1,884.54
8	Add: Opening Stock (Finished Goods)	160.54	167.12	180.93	197.12	244.26
		1,583.36	1,757.17	1,774.87	1,939.60	2,128.80
9	Less: Closing Stock (Finished Goods)	147.12	244.26	147.12	244.26	461.81
10	Cost of Goods Sold	1,436.24	1,512.91	1,627.75	1,695.34	1,666.99
3	Gross Profit (1-2)	454.26	462.66	482.16	579.14	680.28
4	Selling & Adm. Expenses	139.72	162.10	189.72	192.10	257.87
5	Operating Income (3-4)	314.54	300.56	292.44	387.04	422.41
6	Other Income	15.24	25.38	27.87	28.37	34.89
7	Earnings Before Interest & Taxes (5+6)	329.78	325.94	320.31	415.41	457.30
8	Interest	59.84	94.98	112.84	144.20	166.70
9	Profit Before Taxes (7-8)	269.94	230.96	207.47	271.21	290.60
10	Provision for Taxes	51.29	48.50	48.88	64.44	85.96
11	Profit After Taxes (9-10)	218.65	182.46	158.59	206.77	204.64
12	Dividend Distributed	26.24	21.90	19.03	33.08	32.74
13	Retained Earnings	192.41	160.57	139.56	173.69	171.90

13.3 PROFITABILITY RATIOS

Profit is the surplus of the revenue earned by a firm by selling its products or services over the cost incurred to produce those products (or render the services). It is imperative for a firm to earn profits to sustain its operations in the future and reward its shareholders who have invested their funds in the firm. Creditors would also like to see the firm to whom they have provided funds to make profits so that the firm is in a position to repay the loan and pay interest as promised. Employees and workers would want the company to be earning profits so that they receive salary and incentives regularly and on time. A loss-making firm would not be in a position to pay taxes to the government either. Hence, it is important to evaluate the profitability position of a firm. There are various profitability ratios that are usually calculated.

Gross Profit Margin (or Gross Margin) is the ratio of gross profit earned during a year to the sales of the firm during the same period. This ratio indicates the gross profit earned by the firm on every rupee of sales; hence is indicative of the efficiency with which the firm produces each unit of output. Gross profit is defined as the difference between the sales revenue (net of taxes, GST, and sales return) and the cost of goods sold (COGS).

$$\textbf{Gross Profit Margin} = \frac{\textbf{Sales} - \textbf{CostofGoodsSold} \;\; (= \textbf{GrossProfit})}{\textbf{SalesRevenue}}$$

Gross profit margin assesses the efficiency with which the firm produces its products. A higher gross profit margin implies that the firm is able to generate better price for its output, produce goods at relatively lower costs, or both. If the gross profit margin is low, it indicates that the firm produces its product inefficiently. The management would need to investigate its sales policy and marketing efforts, purchasing policy, or producing goods more efficiently.

Net Profit Margin (or Net Margin) relates net profits to the sales of the firm. Net profit (or Profit After Taxes) is calculated after deducting operating expenses, Interest on capital, and taxes paid to the government from the Gross Profit. It relates the profit after taxes to the sales revenue.

$$\mathbf{NetProfitMargin} = \frac{\mathbf{ProfitAfterTaxes(orNetProfit)}}{\mathbf{SalesRevenue}}$$

Like the gross profit margin, the net profit margin also indicates the overall efficiency of the management from producing the goods to selling them. Both the gross profit margin and net profit margin need to be evaluated in combination with each other. Consider a situation where although the gross margin has been increasing over the years, the net profit margin is not increasing at the same rate. This might indicate that although the efficiency of the firm in manufacturing the goods is improving, it's operating expenses or interest expenses are increasing, which is suppressing the net margin. Hence, each expense head needs to be examined to find the cause(s) of the falling trend in the performance.

NOPAT Margin relates the Operating profits to the sales of the firm. Net profit margin is calculated by relating the profit after taxes to the sales revenue. In calculating the profit after taxes, interest on long-term debt is deducted, hence two firms, although similar in their operations but differ in their capital structure, and their net profit margin would not be comparable. Therefore, a better measure of profit that omits the effect of financial leverage is the net operating profit after taxes (NOPAT) computed as EBIT*(1-tax rate). So, the NOPAT margin is computed by relating NOPAT with sales.

$$\mathbf{NetOperatingProfitMargin} = \frac{\mathbf{NOPAT\ (orEBIT(1 - Taxrate))}}{\mathbf{SalesRevenue}}$$

EBITDA Margin relates the Earnings before Interest, Taxes, Depreciation and Amortisation (EBITDA) to the sales of the firm. As mentioned earlier, EBITDA is a broader measure of profits. It is usually considered as a proxy estimate of the Cash profits from the operations as it excludes Interests, Taxes, and even depreciation and other non-cash items. EBITDA measures the operating profits of the firm. As EBITDA excludes interests, taxes, and Depreciation, it is not affected by differences in capital structure, depreciation policy, and impact of taxes due to these differences, which makes the comparison more effective.

$$\mathbf{EBITDAMargin} = \frac{\mathbf{EBITDA}}{\mathbf{SalesRevenue}}$$

So far, we have compared different measures of profits - Gross profit, net profit, operating profit, and EBITDA with sales revenue of the firm. Profits may also be compared with the investment made by the different suppliers of funds – equity shareholders and debt holders

Return on Assets (ROA) relates the NOPAT with the total assets. NOPAT, as defined earlier, is EBIT*(1-tax rate) while the total assets are the aggregate of current and non-current assets.

$$\mathbf{ReturnonAssets(ROA)} = \frac{\mathbf{NOPAT\ (orEBIT} * \mathbf{(1 - taxrate))}}{\mathbf{TotalAssets}}$$

Total Assets EBITDA is a wider measure of profits and is usually considered as a proxy estimate of the Cash profits from the operations as it excludes Interests, Taxes and even depreciation and other non-cash items.

Return on Capital Employed (ROCE) relates NOPAT with the amount of funds - both debt and equity.

$$\mathbf{ReturnonCapitalEmployed(ROCE)} = \frac{\mathbf{NOPAT\ (orEBIT} * \mathbf{(1 - Taxrate)}}{\mathbf{TotalDebt + Shareholers'Funds}}$$

ROCE may also be calculated on a pre-tax basis as follows:

$$\mathbf{ReturnonCapitalEmployed(ROCE)} = \frac{\mathbf{EBIT}}{\mathbf{TotalDebt + Shareholers'Funds}}$$

Return on Equity (ROE) relates the profit after taxes with the funds provided by shareholders.

$$\mathbf{ReturnonEquity\ (ROE)} = \frac{\mathbf{ProfitafterTaxes\ (PAT)}}{\mathbf{Shareholders'Funds}}$$

The shareholders' funds (or net worth) consist of paid-up equity capital and reserves and surplus (net of accumulated losses, if any). Paid-up equity capital is the funds that has been invested by the equity shareholders, while reserves and surpluses are the retained earnings that belong to the equity shareholders. Equity shareholders are entitled to profits after paying all other stakeholders, i.e., profit after taxes – the residual profits. Hence, PAT is related to the funds brought in, or that belong to the equity shareholders. ROE indicates how well the firm has deployed the resources provided by the shareholders and is an essential financial ratio calculated by equity analysts.

Earnings per Share (EPS) indicates the Earnings of the firm on a per-share basis. It is calculated by dividing the Profit after taxes by the no. of equity shares outstanding.

$$\mathbf{EarningsperShare(EPS)} = \frac{\mathbf{ProfitafterTaxes}}{\mathbf{No.ofEquitySharesoutstanding}}$$

EPS reflects the amount that the company has earned in a year on each share. However, the shareholders do not receive the entire earnings. They receive only a part of the earnings, which is called the dividends. Hence, another ratio calculated is the Dividends per Share.

Dividends per Share (DPS) indicates the dividends of the firm on a per-share basis. It is calculated by dividing total dividends paid by the no. of equity shares outstanding.

$$\mathbf{DividendsperShare(EPS)} = \frac{\mathbf{TotalDividends}}{\mathbf{No.\,ofEquitySharesoutstanding}}$$

Dividend Pay-out ratio (DPS) indicates what percentage of the earnings are paid out to the shareholders as dividends. Hence it is calculated by dividing earnings per share with the earnings per share, or the total dividends by profit after taxes.

$$\mathbf{DividendPay-outratio} = \frac{\mathbf{TotalDividends}}{\mathbf{ProfitafterTaxes}}$$

$$= \frac{\mathbf{DividendsperShare}}{\mathbf{EarningsperShare}}$$

Dividends are the return which an investor receives when he buys shares of the firm. From the perspective of an investor or a prospective investor, it would be important to evaluate how the returns (i.e., dividends) compare with the investment (i.e., the market price) made by him in the shares of the firm. Dividend Yield relates the dividends per share with the market price of the shares.

$$\mathbf{DividendYield} = \frac{\mathbf{DividendperShare}}{\mathbf{Marketpricepershare}}$$

It indicates the amount of dividends that the investor would receive per rupee of investment. Similarly, earnings may also be related to the market price to arrive at the Earnings Yield.

$$\mathbf{EarningsYield} = \frac{\mathbf{EarningsperShare}}{\mathbf{Marketpricepershare}}$$

13.4 LIQUIDITY RATIOS

Creditors, in particular, are concerned about the firm's ability to pay their dues. Therefore, they try to analyse the liquidity position of the firm with respect to current assets and current liabilities – that is, to know if the firm's current assets are adequate to pay–off their current liabilities. This is assessed by comparing the current assets with the current liabilities. If a firm is unable to meet its current obligations due to lack of liquidity, it will result in poor creditworthiness, loss of business reputation, and, in extreme cases, legal actions against the firm. At the same time, a high level of liquidity would mean that the funds are invested in low-yielding current assets. Therefore, a proper trade-off must be maintained between too low and too high liquidity in the business.

The current Ratio is the most commonly calculated measure of liquidity. It simply compares the current assets with the current liabilities of the firm.

$$\mathbf{CurrentRatio} = \frac{\mathbf{CurrentAssets}}{\mathbf{CurrentLiabilities}}$$

Current assets typically include cash and bank balance and those assets that can be converted into cash within one year. These would include inventories of finished goods, work-in-progress and raw material, debtors or receivables, and prepaid expenses. Similarly, current liabilities are those obligations of the firm that need to be paid within a year, which would include trade creditor or payables, accrued expenses, short-term loans, and tax liabilities. Current liabilities also include that portion of the long-term loans, which are falling due in the current year.

As the current ratio compares the current assets with the current liabilities, the ratio indicates the quantum of current assets which the firm holds for every rupee of current liabilities. Hence, a higher current ratio is indicative of a better liquidity position. Typically, a current ratio of 2:1, although there is no hard and fast rule. This is based on the reasoning that even if the value of current assets declines by 50%, they would still be sufficient to meet the current liabilities.

Quick ratio (or Acid-test ratio) A stricter measure of the liquidity position of a firm is the Quick ratio (or the Acid-test ratio), which considers only liquid current assets, i.e., it excludes those current assets which cannot be easily converted into cash within a short period of time. As inventory is relatively difficult to be converted into cash, it is excluded from current assets for the purpose of estimating Quick ratio.

$$\mathbf{QuickRatio} = \frac{\mathbf{CurrentAssets} - \mathbf{Inventory}}{\mathbf{CurrentLiabilities}}$$

Conventionally, a quick ratio of 1:1 is considered adequate, although it may still not be adequate if the assets are debtors are not liquid enough. Hence it also needs to be viewed cautiously, just like the current ratio.

An even stricter measure of liquidity is the Cash ratio which compares only the amount of Cash & Bank balances and short-term investments held by the firm to its Current Liabilities.

$$\mathbf{CashRatio} = \frac{\mathbf{CashandBankBalancesandShort} - \mathbf{termInvestments}}{\mathbf{CurrentLiabilities}}$$

Another measure of liquidity is the Net Working Capital (NMC) which is defined as the difference between current assets and current liabilities. The net working capital or net current assets (NCA) are compared with the net assets.

$$\mathbf{NetWorkingCapitalRatio} = \frac{\mathbf{NetWorkingCapital}}{\mathbf{NetAssets}}$$

13.5 LEVERAGE RATIOS

Leverage ratios are designed to assess what proportion of Debt and Equity has been employed by the firm in financing its operations. Debt funds being the funds made available by lenders who require to be compensated by way of interest. Interest on borrowed funds is required to be paid irrespective of the profitability of the firm. Hence the use of debt is considered more risky than equity funds. In fact, the use of debt is considered a double-edged sword. It entails paying a fixed interest expense out of the profits of the firm. The balance profits belong to the shareholders. When the firm is earning more than the cost of borrowed funds, it will magnify the returns to the shareholders. This is called 'trading on equity' or financial leverage. If the firm's cost of borrowed funds is more than the rate of earnings, then the use of debt would reduce the earnings available to equity shareholders. Hence, there is a need to assess the proportion of Debt and Equity in the capital of the firm. Leverage ratios help to assess the long-term financial position of the firm.

Debt – Equity (D/E) ratio: One of the most common leverage ratios is the Debt-Equity ratio. It compares the amount of borrowed funds (or debt) with the amount of owners' funds (or equity) of a firm. Debt consists of interest-bearing long-term borrowings. Sometimes, both long-term and short-term borrowings are considered as debt. Shareholders' funds consist of Share capital and free reserves, i.e., the funds provided by equity shareholders or available for distribution to them.

$$\mathbf{Debt-Equityratio} = \frac{\mathbf{Long-termInterestbearingDebt}}{\mathbf{Shareholders'Fund\ (Equity)}}$$

The debt-Equity ratio indicates the amount of borrowed funds employed for each rupee of shareholders' funds. The higher the ratio, the higher the amount of debt for a given amount of shareholders' funds, which would mean higher use of financial leverage. Generally speaking, use of higher leverage would mean that the firm is riskier, in most cases. For firms like banks and finance companies, a debt-equity ratio of 10:1 is also allowed, as money is the raw material for such firms.

A variant of the Debt-Equity ratio is the Debt ratio which is defined as follows:

$$\mathbf{DebtRatio} = \frac{\mathbf{Long-termInterestbearingDebt}}{\mathbf{Long-termInterestbearingDebt} + \mathbf{Shareholders'Fund\ (Equity)}}$$

This ratio compares the Debt with the total Assets of the firms; hence it measures the extent to which the assets have been financed by Debt or borrowings. This ratio is also referred to as Debt–to -Capital employed ratio.

13.6 COVERAGE RATIOS

The leverage ratios such as the Debt ratio or Debt-Equity ratio, discussed

above, which study the proportion of debt and equity in the capital structure. Besides them, analysts also calculate another set of ratios called the Coverage ratios, which assess the adequacy or otherwise of the profits to pay the interest obligations. The leverage ratios simply comment on the mix between debt and equity in the capital structure of a firm. These ratios did not throw much light on the firm's ability to meet its obligations arising out of the capital structure, i.e., the obligation to pay the interest. Coverage ratios help access the adequacy or otherwise of the profits/ cash flows in paying the interest obligations.

Interest Coverage ratio:

$$\textbf{InterestCoverageratio} = \frac{\textbf{EBIT}}{\textbf{Interest}}$$

It shows the number of times the funds cover the interest obligations out of which they are to be paid; hence a higher interest coverage ratio would indicate a better liquidity position for the firm. A variant of this ratio is the EBITDA to Interest ratio. EBITDA is considered to be a proxy indicator of cash flow availability. A higher ratio indicates superior position as regards the firm's position to meet its interest charges is concerned.

Debt Service Coverage ratio (DSCR): This is a popular ratio calculated by banks and financial institutions while granting long-term loans to companies. While the Interest coverage ratio considers only the interest obligation to be paid, DSCR considers the repayment of the principal loan amount also. Further, just as interest and loan repayment are mandatory obligations, so are the obligations to pay lease rentals and dividends of preference shares. Hence, these are also included in the calculation of DSCR. But Interest and lease rentals are tax-deductible, but preference dividends and principal repayment are not; hence post-tax interest and post-tax lease rentals are considered for the calculations. Thus, DSCR is calculated by dividing EBITDA by post-tax interest & lease rentals, principal repayment, and preference dividends.

$$\textbf{DebtServiceCoverageratio (DSCR)} = \frac{\textbf{EBITDA}}{\textbf{Post} - \textbf{taxInterest\&}\boldsymbol{LeaseRentals} + \boldsymbol{PrincipalRepayment} + \boldsymbol{PreferenceDividends}}$$

13.7 EFFICIENCY (OR ACTIVITY) RATIOS

Management and the providers of funds are concerned about the proper utilisation of the funds invested in the business. A greater amount of sales for a given amount of capital is an indicator of better utilisation of the funds at the disposal of the firm. Efficiency ratios (or Activity ratios) are used to evaluate the efficiency with which a firm uses its assets. These ratios are also referred to as Turnover ratios as they relate the various components of assets – Inventory, Debtors, or Fixed assets with the Sales or Turnover of the firm. Usual efficiency ratios include Inventory turnover ratio, Debtor Turnover ratio, Creditors Turnover ratio and Assets turnover ratio.

Inventory Turnover ratio measures the speed with which the firm turns the

inventories into sales. It is calculated by dividing the cost of goods sold (or sales if COGS figure is not available) with the average inventory of finished goods.

$$\mathbf{InventoryTurnoverRatio} = \frac{\mathbf{CostofGoodSold\ (orSales)}}{\mathbf{AverageInventory}}$$

Average inventory is calculated by taking the average of opening and closing balances of inventory. The inventory turnover ratio indicates how fast (or slow) the inventory is converted into cash. If the inventory turnover ratio is high, it indicates that the firm is able to achieve its sales by maintaining a small level of inventory and hence it is managing its inventory better. A low inventory turnover ratio would be indicative of slow-moving inventory. Funds are blocked in inventory, and therefore the profitability of the firms is hampered. Inventory turnover ratio can be calculated for various stages of inventory – inventories of finished goods, work-in-progress, or raw material, as follows:

$$\mathbf{WIPInventoryTurnoverRatio} = \frac{\mathbf{Costofproduction}}{\mathbf{AverageWIPInventory}}$$

$$\mathbf{RawMaterialInventoryTurnoverRatio} = \frac{\mathbf{CostofMaterialsconsumed}\ )}{\mathbf{AverageRawMaterialInventory}}$$

When a firm sells its goods for cash, it receives cash immediately. However, when a firm sells on credit, the buyers are required to pay over a certain period. Credit sale of goods gives rise to the creation of debtors or accounts receivables. Gradually, when the buyers pay up, debtors are converted into cash. So long the buyers of goods do not pay; the firm's funds are blocked in the form of debtors. The quality of debtors is analysed by calculating the Debtor turnover ratio, average collection period and the ageing schedule.

Like the Inventory turnover ratio, the Debtor Turnover ratio also indicates the speed with which the debtors are converted into cash. It is calculated as follows:

$$\mathbf{DebtorTurnoverRatio} = \frac{\mathbf{CreditSales}}{\mathbf{AverageDebtors}}$$

If a firm has a higher debtor turnover ratio, it is considered more efficient than a firm with a lower debtor turnover ratio as it rotates its debtors more frequently.

Average Collection Period is the period taken by the firm, on an average, to collect its debtors. It is calculated by dividing 365 days by the Debtors turnover ratio.

$$\mathbf{AverageCollectionPeriod} = \frac{\mathbf{365}}{\mathbf{DebtorTurnoverratio}} = \frac{\mathbf{AverageDebtors}}{\mathbf{Creditsales}} * \mathbf{365}$$

The average collection period indicates the speed at which the firm is

collecting the debtors. A short average collection period would indicate that the firm is taking fewer days to collect the debtors. The average collection period should be compared with the stated credit policy of the firm, which signifies the no. of days a debtor can pay for the credit purchases made by him. For example, if the firm's credit policy allows a debtor a credit period of say 45 days, and the average collection period is 40 days, then we may conclude that the firm is efficient in managing and collecting the receivables.

Average collection period analyses the speed of collecting the debtors as a collective group. The firm might be realising certain debtors in a short period of time while taking more no. of days in realising from other sets of debtors. However, the average collection period would give a figure of all the debtors collectively. A better way to analyse the collection efforts is by way of preparing the ageing schedule. The ageing schedule tells us the amount of debtors outstanding for different periods. For example, if a firm has total outstanding debtors of say Rs. 14 Lacs, as of a particular date, the ageing schedule would indicate the amount of debtors outstanding for '0 to 10' days; 11 – 20 days, 21 – 30 days, 31 – 40 days, 41 to 50 days, and more than 50 days.

Ageing Schedule

No. of Days Outstanding	Amount Outstanding (Rs)	% Age
0 - 10	3,50,000	25%
11 - 20	5,75,000	41%
21 - 30	2,56,000	18%
31 -40	1,20,000	9%
41-50	59,000	4%
More than 50	40,000	3%
Total	14,00,000	100%

From the above hypothetical ageing schedule, we may conclude that a large part of the debtors (41% to the total debtors) is outstanding for 11 to 20 days, which need to be investigated. Only a tiny portion (7%) are outstanding for more than 40 days.

Similarly, we may estimate the creditor's turnover ratio as follows:

$$\textbf{CreditorsTurnoverRatio} = \frac{\textbf{CreditSales}}{\textbf{AverageCreditors}}$$

The creditors turnover ratio indicates how fast the firm is paying its creditors from whom it has purchased goods on credit.

Asset turnover ratio is used to evaluate the efficiency in the usage of the assets in generating sales. Assets are used to generate sales. Hence, in order to maximise sales, a firm should manage its assets efficiently. A firm may calculate the Net Assets Turnover ratio as:

$$\textbf{NetAssetsTurnoverRatio} = \frac{\textbf{Sales}}{\textbf{NetAssets}}$$

Net assets include the long-term assets (or non-current assets) and net Current assets (i.e., Current assets less Current Liabilities). If this ratio is high, it would indicate that with a given amount of net assets, the firm can generate high sales; hence the firm is using its assets productively. As net assets also represent the amount of capital employed in the firm, this ratio is also referred to as the Capital employed turnover ratio. Similarly, we may calculate the Fixed Assets turnover ratio and current assets turnover ratio in order to evaluate the efficiency of its usage of fixed assets and current assets in generating sales.

13.8 INVESTMENT RATIOS (OR VALUATION RATIOS):

Valuation is the process of estimating the worth of a company. Valuation ratios are a helpful tool for evaluating the investment potential of a firm. Here is a list of principle valuation ratios.

Price – Earnings Ratio (P/E ratio): The Price – Earnings ratio relates the current market company's equity shares with the Earnings per Share.

$$\textbf{Price} - \textbf{to} - \textbf{EarningsRatio} = \frac{\textbf{MarketPriceofEquityShare}}{\textbf{EarningsperShare}}$$

It indicates what the market expects to pay for each rupee of earnings. This ratio is extensively used by financial analysts to value a firm by multiplying the earnings per share with the P/E ratio of comparable firms or pre-decided P/E ratio.

Market-to-Book Value ratio: This ratio relates the market price to the book value per share.

$$\text{Market} - \text{to} - \text{Book Ratio} = \frac{\text{Market Value per Equity share}}{\text{Book Value per of Equity share}}$$

Book value is estimated by dividing the net worth of the firm by the number of equity shares outstanding. Book value signifies the aggregate worth of the funds invested by the equity shareholders. This ratio, therefore, indicates who much more (or less) is the shareholders' money is worth. If the M/B ratio is greater than 1, it indicates that the shareholders' funds are worth more than their investment, while an M/B ratio less than 1 signifies erosion of shareholders' investment in the firm.

Enterprise Value to EBITDA: This ratio relates the Enterprise Value (EV) to the Earnings before Interest, Taxes, Depreciation and Amortisation (EBITDA).

$$\text{EV to EBITDA Ratio} = \frac{\text{Enterprise Value}}{\text{EBITDA}}$$

Enterprise value is the value of the entire firm (whether financed by Debt or

Equity), less non-operational (excess) Cash and short-term investments. EBITDA, as mentioned earlier, is the Earnings before Interest, Taxes, and Depreciation &Amortisations. While the P/E ratio considers only the market value of equity with the profit after taxes, the EV to EBITDA ratio compares the value of the entire firm to the earnings. It is considered a better indicator than the P/E ratio as it is not influenced by the financing decision (capital structure), taxes or the method of depreciation adopted by firms.

Tobin's Q: Popularised by Nobel laureate James Tobin, the ratio relates the market value of a firm's assets to the replacement cost of these assets.

$$\text{Tobin's Q} = \frac{\text{Market Value of Assets}}{\text{Replacement Cost of Assets}}$$

The replacement cost of assets is the cost a firm would have to incur today if it was required to recreate those assets of the firm. The replacement cost is therefore based on the subjective assessment of an analyst. If the ratio is greater than 1, it would indicate that in present-day money terms, the cost of setting up similar facilities is less than the market value of the firm's assets, which implies that the stock is overvalued. On the other hand, if the ratio is less than 1, it would mean that the cost of setting up the facilities/assets similar to what the company has is more than the market value of these assets, which implies that the stock is undervalued.

	Ratio		2016	2017	2018	2019	2020
A.	Profitability Ratios:						
1	Gross Profit Margin	Gross Profit	454.26	462.66	482.16	579.14	680.28
		Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
			24.03%	23.42%	22.85%	25.46%	28.98%
2	Net Profit Margin	Net Profit	218.65	182.46	158.59	206.77	204.64
		Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
			11.57%	9.24%	7.52%	9.09%	8.72%
		EBIT (1-t) =NOPAT	224.25	221.64	217.81	282.48	310.97
		Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
			11.86%	11.22%	10.32%	12.42%	13.25%
3	Operating Expense Ratio	Operating Expenses	1,575.96	1,675.01	1,817.47	1,887.44	1,924.86
		Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
			83.36%	84.79%	86.14%	82.98%	82.00%
4	Return on Investment (ROI)	EBIT (1-t)	224.25	221.64	217.81	282.48	310.97
		Total Assets	1,963.45	2,737.59	3,729.96	4,348.14	5,001.04

			11.42%	8.10%	5.84%	6.50%	6.22%
		EBIT (1-t)	224.25	221.64	217.81	282.48	310.97
		Net Assets	1,613.72	2,367.09	3,221.13	3,745.79	4,389.30
			13.90%	9.36%	6.76%	7.54%	7.08%
5	Return on Equity (ROE)	Profit After Taxes	218.65	182.46	158.59	206.77	204.64
		Net Worth	660.69	821.26	960.82	1,134.50	1,306.40
			33.09%	22.22%	16.51%	18.23%	15.66%
6	Earnings Per Share	Profit After Taxes	218.65	182.46	158.59	206.77	204.64
		No. of Shares O/s	37,45,600	37,45,600	37,45,600	37,45,600	37,45,600
			5.84	4.87	4.23	5.52	5.46
7	Dividend Per Share	Equity Dividends	26.24	21.90	19.03	33.08	32.74
		No. of Shares O/s	37,45,600	37,45,600	37,45,600	37,45,600	37,45,600
			0.70	0.58	0.51	0.88	0.87
8	Dividend Payout Ratio	Equity Dividends	26.24	21.90	19.03	33.08	32.74
		Profit After Taxes	218.65	182.46	158.59	206.77	204.64
			12.00%	12.00%	12.00%	16.00%	16.00%
9	Dividend Yield	DPS	0.70	0.58	0.51	0.88	0.87
		MP	114.60	176.65	223.85	229.25	335.25
			0.61%	0.33%	0.23%	0.39%	0.26%
10	Earnings Yield	EPS	5.84	4.87	4.23	5.52	5.46
		MP	114.60	176.65	223.85	229.25	335.25
			5.09%	2.76%	1.89%	2.41%	1.63%
11	Price-Earnings ratio (PE)	Market Price per Share	114.60	176.65	223.85	229.25	335.25
		EPS	5.84	4.87	4.23	5.52	5.46
			19.6	36.3	52.9	41.5	61.4
12	Market Value to Book Value	MP per Share	114.60	176.65	223.85	229.25	335.25
		Book Value per Share	17.64	21.93	25.65	30.29	34.88
			6.50	8.06	8.73	7.57	9.61
B.	Leverage Ratios:						
1	Debt Ratio	Total Debt	953.03	1,545.83	2,260.32	2,611.29	3,082.90

		Total Debt + Net worth	1,613.72	2,367.09	3,221.13	3,745.79	4,389.30
			0.59	0.65	0.70	0.70	0.70
2	Debt -Equity Ratio	Total Debt	953.03	1,545.83	2,260.32	2,611.29	3,082.90
		Net worth	660.69	821.26	960.82	1,134.50	1,306.40
			1.44	1.88	2.35	2.30	2.36
3	Interest Coverage Ratio	EBIT	329.78	325.94	320.31	415.41	457.30
		Interest	59.84	94.98	112.84	144.20	166.70
			5.51	3.43	2.84	2.88	2.74
		EBITDA	362.85	360.40	358.14	455.37	502.53
		Interest	59.84	94.98	112.84	144.20	166.70
			6.06	3.79	3.17	3.16	3.01
C.	Activity ratios:						
1	Inventory Turnover	COGS		1,512.91	1,627.75	1,695.34	1,666.99
		Average Inventory		632.35	756.44	799.29	868.17
				2.39	2.15	2.12	1.92
2	Days Holding Period	Avg Inventory *360				799.29	868.17
		COGS		1,512.91	1,627.75	1,695.34	1,666.99
						169.73	187.49
3	Debtors Turnover	Credit Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
		Average Debtors (or Closing Debtors)	435.59	519.29	528.94	850.31	1,076.72
		** Assuming all Sales are Credit Sales*	4.34	3.80	3.99	2.67	2.18
4	Average Collection Period	Debtors * 360	435.59	519.29	528.94	850.31	1,076.72
		Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
			82.95	94.63	90.25	134.58	165.14
5	Net Asset Turnover	Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
		Net Assets	1,613.72	2,367.09	3,221.13	3,745.79	4,389.30
			1.17	0.83	0.66	0.61	0.53
6	Total Asset Turnover	Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27

		Total Assets	1,963.45	2,737.59	3,729.96	4,348.14	5,001.04
			0.96	0.72	0.57	0.52	0.47
7	Current Asset Turnover	Sales	1,890.50	1,975.57	2,109.91	2,274.48	2,347.27
		Current Assets	1,416.75	1,720.04	1,880.78	2,356.57	2,964.72
			1.33	1.15	1.12	0.97	0.79
D.	Liquidity ratios:						
1	Current ratio	Current Assets	1,416.75	1,720.04	1,880.78	2,356.57	2,964.72
		Current Liabilities	349.73	370.50	508.83	602.35	611.74
			4.05	4.64	3.70	3.91	4.85
2	Quick ratio	CA - Inventories	624.55	783.30	790.63	1,149.59	1,405.44
		Current Liabilities	349.73	370.50	508.83	602.35	611.74
			1.79	2.11	1.55	1.91	2.30
3	Cash Ratio	Cash + Mktable Sec.	164.93	190.73	183.11	192.39	194.99
		Current Liabilities	349.73	370.50	508.83	602.35	611.74
			0.47	0.51	0.36	0.32	0.32
4	Net Working Capital Ratio	Net Working Capital	724.10	743.60	318.23	608.82	1,167.49
		Net Assets	1,613.72	2,367.09	3,221.13	3,745.79	4,389.30
			0.45	0.31	0.10	0.16	0.27

13.9 SUMMARY

Ratio analysis is an important tool used in the analysis of financial statements. A ratio is simply the relationship between any two or more things. In the context of financial statements, when any two or more items of the financial statements are expressed as a ratio, it is called a financial ratio. Any business has many stakeholders. Different stakeholders in a business firm want to evaluate the financial performance of firms from their perspective. Hence, we may classify the financial ratios as Profitability ratios, Liquidity ratios, Leverage ratios, Coverage ratios, Efficiency ratios, and Valuation ratios. Profitability ratios assess the firm on its profit earning capacity. The liquidity ratios measure the firm's ability to meet its short-term liabilities. Leverage ratios analyse the proportion of debt and equity in the firm's capital structure. The valuation ratios are used to value the investment made by the shareholders.

13.10 KEY WORDS

Acid-test ratio; Aging Schedule; Average Collection Period; Capital Employed Turnover ratio; Cash ratio; Coverage Ratios; Creditors Turnover ratio; Current assets turnover ratio; Current Ratio; Debt – Equity (D/E) ratio; Debt ratio; Debt Service Coverage ratio; Debtor Turnover ratio; Dividend Pay-out ratio; Dividend Yield; Dividends per Share; Earnings per Share; Earnings Yield; EBITDA Margin; Efficiency Ratios; Enterprise Value to EBITDA; Fixed assets Turnover ratio; Gross Margin; Gross Profit Margin; Interest Coverage ratio; Inventory Turnover ratio ; Investment Ratios; Leverage Ratios; Liquidity Ratios; Market-to-Book Value ratio; Net Margin; Net Profit Margin; Net Working Capital ratio; NOPAT Margin; Price – Earnings Ratio ; Profitability Ratios; Quick ratio; Return on Assets; Return on Capital Employed; Return on Equity; Tobin's Q; Valuation Ratios.

13.11 SELF ASSESSMENT QUESTIONS/EXERCISES

1. Briefly discuss the concept of Ratio Analysis. Give an overview of the different types of financial ratios. How do different stakeholders use Ratio Analysis?
2. Discuss the rationale for Liquidity ratios. What are the various liquidity ratios?
3. Explain the different leverage ratios highlighting their benefits to the firm.
4. What is meant by activity ratios? What are the different activity ratios? What purpose do the activity ratios serve?
5. Explain the significance of profitability ratios. What are the different types of profitability ratios?

Test Your Understanding:

Multiple Choice Questions

1. Given that Sales is Rs 1,20,000, and Gross Profit is Rs. 30,000, the gross profit ratio is
   a. 24%
   b. 25%
   c. 40%
   d. 44%
2. If the selling price is fixed 25% above the cost, the Gross Profit ratio is
   a. 13%
   b. 28%
   c. 26%
   d. 20%

3. Which of the following is not included in current assets?
   a. Debtors
   b. Shares
   c. Cash at bank
   d. Cash in hand
4. Debt-Equity ratio compares
   a. Short-term debt to Equity Capital
   b. Short-term + Long-Term Debt to Shareholders' Funds
   c. Long-Term Debt to Equity
   d. Short-term Debt to Equity Capital
5. Return on Equity is defined as
   a. Profit After Taxes / Equity
   b. Profit Before Taxes / Equity
   c. EBIT/ Capital Employed
   d. EBIT (1-tax rate)/Capital Employed
6. Determine Inventory turnover ratio, if Opening stock is Rs 31,000, Closing stock is Rs 29,000, Sales is Rs 3,20,000, and Gross profit ratio is 25% on sales.
   a. 31 times
   b. 11 times
   c. 8 times
   d. 32 times
7. Quick ratio is 1.8:1, current ratio is 2.7:1, and current liabilities are Rs 60,000. Determine the value of inventory.
   a. Rs 54,000
   b. Rs 60,000
   c. Rs 1,62,000
   d. None of the above
8. Return on equity capital is calculated on the basis of:
   a. Funds of equity shareholders
   b. Equity capital only
   c. Either a or b
   d. None of the above
9. Net operating profit ratio determines _____ while net profit ratio determines_____
   a. Overall efficiency of the business, working efficiency of the management

b. Working efficiency of the management, overall efficiency of the business

c. Overall efficiency of the external market, working efficiency of the internal management

d. None of the above

10. If sales is Rs 10,00,000, sales returns is Rs 50,000, Profit Before Tax is Rs 2,00,000, Income tax is 40%, Net profit ratio is

    a. 12.63%

    b. 20%

    c. 10%

    d. 50%

Answers to Multiple Choice Questions

1. b
2. d
3. b
4. b
5. a
6. c
7. a
8. c
9. b
10. a

13.12 ADDITIONAL READINGS

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UNIT 14 COMPARATIVE, COMMON SIZE, AND TREND STATEMENT

Objective

The unit aims to:

- acquaint you with the ways to anlayse changes in financial performance
- helping you to prepare analysis statements and reports from financial statements
- acquaint you with the technique of inter-firm analysis
- explain the DuPont analysis technique

Structure

14.1 Introduction

14.2 Comparative Statement Analysis

14.3 Common-size Analysis

14.4 Trend Analysis

14.5 Inter-firm Analysis

14.6 DuPont Analysis

14.7 Using Financial Ratios to predict Bankruptcy

14.8 Applications of Financial ratios

14.9 Summary

14.10 Test Your Understanding

14.11 Additional Readings

14.1 INTRODUCTION

In the previous chapter, we learnt about the various financial ratios – Profitability, Leverage, Activity, Efficiency, and Investment ratios - how to calculate them and the interpretation of these ratios. Estimating these ratios for one year provides some insight into the functioning of a firm. We are in a slightly better position in understanding the complexities of a business enterprise. Calculating these ratios is the first step in this exercise. Such financial ratios have limited usage as conclusive comments cannot be made. Further analysis is therefore required to be made in order to reach to some definitive conclusions.

In order to understand the financial statements of a firm and hence comment on the financial performance, we need to compare the ratios over time and compare them with other similar companies. There are various tools and techniques to achieve this, which are discussed in this chapter.

14.2 COMPARATIVE STATEMENT ANALYSIS

A common approach to study the changes in the financial performance of a firm is to simply compare the financial statements for at least two years and calculate the changes between the two years. Such an analysis is called **Comparative Statement Analysis.** In this analysis, financial statements of at least two years need to be considered. For example, consider the Balance sheet for a hypothetical company - ABCL Limited for two years – year ending March 31, 2020, and 2021, given in Table 14.1. Next, we calculate the change for each line item of the balance sheet (2021 over 2020). This is given in column '3' of Table 14.1. We also express this change as a percentage over the base year, i.e. 2020, in column '4' of the table. For example, the long-term borrowing in 2021 was Rs 1466.11 Crores, while in 2020; they were Rs. 1562 Crores – a decrease of Rs 95.89 crores. In percentage terms, this is a fall of 6.14% over 2020. ((1466-1562)/1562 *100 = -6.14%). Similarly, we calculate the 'change' and the 'percentage change' for each line item of the balance sheet and income statement, as shown in Table 14.1. Such an exercise helps gain insights into the financial statements, i.e. which items of balance sheet and income statement have increased (or decreased) significantly over the two years. Such an analysis may be extended to include more number of years.

Table 14.1 Comparative Analysis

ABCL Limited

Balance Sheet *(Rs. Crores)*

As on March 31,

Particulars	**2020**	**2021**	**Change**	**%age Change**
Liabilities:				
Equity Capital	356.00	356.00	0.00	*0.00%*
Reserves & Surplus	1245.00	1392.67	147.67	*11.86%*
Net Worth	**1601.00**	**1748.67**	147.67	*9.22%*
Non-Current Liabilities:				
Long-term borrowings	1562.00	1466.11	-95.89	*-6.14%*
10% Debentures	1129.00	1550.51	421.51	*37.33%*
Total Non-Current Liabilities	**2691.00**	**3016.62**	**325.62**	***12.10%***
Current Liabilities:				
Trade Creditors	234.00	299.00	65.00	*27.78%*
Short-term Borrowings	357.95	447.81	89.86	*25.10%*
Other Current Liabilities & Provisions	96.00	136.76	40.76	*42.46%*
Total Current Liabilities	**687.95**	**883.57**	**195.62**	***28.44%***

Total Liabilities	**4979.95**	**5648.86**	**668.91**	***13.43%***
Assets:				
Non-Current assets:				
Plant & Equipment	1964.88	2632.35	667.47	*33.97%*
Less Accumulated Depreciation	186.27	256.34	70.07	*37.62%*
Net Plant & Equipment	**1778.61**	**2376.01**	**597.40**	***33.59%***
Investments	129.82	205.49	75.67	*58.29%*
Other Non-Current Assets	57.00	178.34	121.34	*212.88%*
Total Non-Current Assets	**1965.43**	**2759.84**	**794.41**	***40.42%***
Current Assets:				
Raw Material	589.74	728.59	138.85	*23.54%*
Work-in-Progress	282.50	381.75	99.25	*35.13%*
Finished Goods	1774.84	1312.80	-462.04	*-26.03%*
Total Inventories	**2647.08**	**2423.14**	**-223.94**	***-8.46%***
Trade Debtors	234.76	329.99	95.23	*40.56%*
Cash & Bank Balances	55.67	35.92	-19.75	*-35.48%*
Loan & Advances	45.23	45.76	0.53	*1.17%*
Other Current Assets	31.78	54.21	22.43	*70.58%*
Total Current Assets	**367.44**	**465.88**	**98.44**	***26.79%***
Total Assets	**4979.95**	**5648.86**	**668.91**	***13.43%***

Similarly, a comparative statement may be prepared for the income statement as well.

14.3 COMMON-SIZE ANALYSIS

Another way to analyse the financial statements is by preparing a Common-size statement. In this, each item of the balance sheet is expressed as a percentage of total assets or total liabilities, as shown in Table 14.2.For example; Equity capital in the year 2020 is Rs. 356 Crores which is 7.15% of the Total Liabilities of Rs. 4979.95 Crores. This is mentioned in column '3' of Table 14.2. Similarly, all other items of the balance sheet are expressed as a percentage of the Total assets or Total liabilities. In this analysis, the financial statements are redrafted to be expressed in terms of common base (total Assets or liabilities in case of balance sheet and Net Sales in case of Income Statement). Therefore such statements are called **Common-size statement Analysis**.

Table 14.2 Common -Size Analysis

ABCL Limited

Balance Sheet *(Rs. Crores)*

As on March 31,

Particulars	**2020**	**2021**	**2020**	**2021**
Liabilities:				
Equity Capital	356.00	356.00	7.15%	6.30%
Reserves & Surplus	1245.00	1392.67	25.00%	24.65%
Net Worth	**1601.00**	**1748.67**	**32.15%**	**30.96%**
Non-Current Liabilities:				
Long-term borrowings	1562.00	1466.11	31.37%	25.95%
10% Debentures	1129.00	1550.51	22.67%	27.45%
Total Non-Current Liabilities	**2691.00**	**3016.62**	**54.04%**	**53.40%**
Current Liabilities:				
Trade Creditors	234.00	299.00	4.70%	5.29%
Short-term Borrowings	357.95	447.81	7.19%	7.93%
Other Current Liabilities & Provisions	96.00	136.76	1.93%	2.42%
Total Current Liabilities	**687.95**	**883.57**	**13.81%**	**15.64%**
Total Liabilities	**4979.95**	**5648.86**	**100.00%**	**100.00%**
Assets:				
Non-Current assets:				
Plant & Equipment	1964.88	2632.35	39.46%	46.60%
Less Accumulated Depreciation	186.27	256.34	3.74%	4.54%
Net Plant & Equipment	**1778.61**	**2376.01**	**35.72%**	**42.06%**
Investments	129.82	205.49	2.61%	3.64%
Other Non-Current Assets	57.00	178.34	1.14%	3.16%
Total Non-Current Assets	**1965.43**	**2759.84**	**39.47%**	**48.86%**
Current Assets:				
Raw Material	589.74	728.59	11.84%	12.90%
Work-in-Progress	282.50	381.75	5.67%	6.76%
Finished Goods	1774.84	1312.80	35.64%	23.24%
Total Inventories	**2647.08**	**2423.14**	**53.15%**	**42.90%**
Trade Debtors	234.76	329.99	4.71%	5.84%
Cash & Bank Balances	55.67	35.92	1.12%	0.64%
Loan & Advances	45.23	45.76	0.91%	0.81%
Other Current Assets	31.78	54.21	0.64%	0.96%

Total Current Assets	**367.44**	**465.88**	**7.38%**	**8.25%**
Total Assets	**4979.95**	**5648.86**	**100.00%**	**100.00%**

14.4 TREND ANALYSIS

Another important technique of analysing the financial statements is to examine them over a period of time – say over five years, and study the trend over the years, especially in items of Income statement like sales, profits or items of balance sheet like net worth, debt etc. In order to undertake such trend analysis, the financial statements of five years are laid out the hypothetical firm- ABC limited are given in chapter 13. The trend analysis of key financial indicators is given in Table 14.3 below. The important financial indicators like– Sales, EBIT, Interest etc., are expressed as 100 for the base year, i.e. 2016. And then, each item is expressed relative to the amount in the base year. Sales for the year 2017 were Rs. 1957.57 Lacs, and for 2016 they were Rs. 1890.50 Lacs. So the index value for Sales for the year 2017 would be 104.5, i.e. Rs. 1957.57 Lacs/ Rs. 1890.50 Lacs *100 = 104.5. This means that the sales in 2017 grew at 4.5% over 2016. Similarly, all the other figures have been worked out, as in Table 14.3.

Table 14.3 Trend Analysis for ABC Limited.

Particulars	2016	2017	2018	2019	2020
Sales (Net)	100.0	104.5	111.6	120.3	124.2
Earnings Before Interest & Taxes	100.0	98.8	97.1	126.0	138.7
Interest	100.0	186.1	338.2	364.3	372.5
Profit Before Taxes	100.0	85.6	76.9	100.5	107.7
Profit After Taxes	100.0	83.4	72.5	94.6	93.6
Net worth	100.0	124.3	145.4	171.7	197.7
Total Liabilities	100.0	146.7	199.6	232.1	272.0
Net Fixed Assets	100.0	186.1	338.2	364.3	372.5
Current Assets	100.0	121.4	132.8	166.3	209.3
Total Assets	100.0	146.7	199.6	232.1	272.0

An important conclusion from the above is that the firm has grown rapidly in terms of asset base since 2018 onwards, which is fuelled by long-term borrowings, but sales and profitability have not increased at the same pace.

14.5 INTER-FIRM ANALYSIS

Besides investigating the financial statements of the company in question, analysts also compare the financial performance of the firm with its close competitors or the industry averages. Such an analysis is referred to as **Inter-firm analysis** or **Cross-sectional analysis**, which enables the analysts to compare the firm's performance with its competitors or industry average. The financial ratios are compared with firms that are similar in terms of sales,

assets size, market share etc., in order to examine the financial performance. For example, the key financial indicators – Sales, PAT, Borrowings, Fixed Assets, Equity and retained earnings, of the top 15 fertiliser firms (in terms of Sales) are listed in Table 14.4.From this, we can see that National Fertilizers Limited is the largest firm in terms of Sales.

Table 14.4 Key Financial Indicators of Fertiliser Firms in India for the year 2020.

S. No.	Company Name	Sales	Profit after tax	Long term borrowings	Net Fixed Assets	Equity capital	Retained Earnings
		Rs. Million	Rs. Million	Rs. Million	Rs. Million	Rs. Million	Rs. Million
1	National Fertilizers Ltd.	1,28,111.3	-1,710.1	6,000.0	37,244.0	4,905.8	14,303.6
2	Rashtriya Chemicals & Fertilizers Ltd.	94,173.6	2,081.5	6,103.5	21,239.2	5,516.9	26,345.8
3	Gujarat State Fertilizers & Chemicals Ltd.	76,279.7	987.0	933.3	28,950.7	797.0	67,181.3
4	Paradeep Phosphates Ltd.	41,928.7	1,940.5	1,394.2	12,140.3	5,754.5	10,286.2
5	Smartchem Technologies Ltd.	31,507.0	93.8	6,475.6	28,187.4	170.5	26,155.4
6	Fertilisers & Chemicals, Travancore Ltd.	27,753.5	9,755.2	9,056.4	2,571.4	6,470.7	-11,384.9
7	Mangalore Chemicals & Fertilizers Ltd.	27,116.3	645.5	2,237.0	6,075.3	1,185.2	4,270.4
8	GreenstarFertilisersLtd.	25,382.1	466.1	320.2	3,727.6	289.4	2,175.8
9	Kanpur Fertilizers & Cement Ltd.	24,768.8	8.7	1,162.7	8,174.5	2,909.6	4,734.2
10	Kribhco Fertilizers Ltd.	24,729.2	-276.2	2,869.1	8,704.2	8,000.6	-3,501.5
11	Southern Petrochemical Inds. Corpn. Ltd.	21,110.3	569.4	-	3,518.3	2,036.4	1,968.9
12	ZuariAgro Chemicals Ltd.	20,126.3	-1,890.1	2,885.5	4,893.5	420.6	749.7
13	Madras Fertilizers Ltd.	12,776.9	-1,348.8	512.8	1,987.2	1,611.0	-7,930.3
14	Nagarjuna Fertilizers & Chemicals Ltd.	4,611.5	-4,723.5	304.3	23,983.4	598.1	538.9
15	Rama Phosphates Ltd.	4,484.4	176.7	1.0	427.6	176.7	1,484.1

Source: CMIE's Prowess Database

Further, Table 14.5 shows a few financial ratios based on the above financial indicators. This can also help in comparing the performance of the sample firms. For example, although National Fertilizers Limited is the largest firm

in terms of Sales, it is not the most profitable firm. Fertilisers & Chemicals Travancore Ltd is the most profitable firm in the sample with a Net Profit Margin of 35%. This way, the performance of firms may be compared with each other.

Table 14.5 Financial Ratios of Fertiliser Firms in India for the year 2020.

S.No.	Company Name	NPM	D/E	Sales/CE
1	National Fertilizers Ltd.	-1.33%	0.31	5.08
2	Rashtriya Chemicals & Fertilizers Ltd.	2.21%	0.19	2.48
3	Gujarat State Fertilizers & Chemicals Ltd.	1.29%	0.01	1.11
4	Paradeep Phosphates Ltd.	4.63%	0.09	2.40
5	Smartchem Technologies Ltd.	0.30%	0.25	0.96
6	Fertilisers & Chemicals Travancore Ltd.	35.15%	-1.84	6.70
7	Mangalore Chemicals & Fertilizers Ltd.	2.38%	0.41	3.52
8	Greenstar Fertilizers Ltd.	1.84%	0.13	9.11
9	Kanpur Fertilizers & Cement Ltd.	0.04%	0.15	2.81
10	Kribhco Fertilizers Ltd.	-1.12%	0.64	3.36
11	Southern Petrochemical Inds. Corpn. Ltd.	2.70%	0.00	5.27
12	ZuariAgro Chemicals Ltd.	-9.39%	2.47	4.96
13	Madras Fertilizers Ltd.	-10.56%	-0.08	-2.20
14	Nagarjuna Fertilizers & Chemicals Ltd.	-102.43%	0.27	3.20
15	Rama Phosphates Ltd.	3.94%	0.00	2.70

Source: Calculated using data from CMIE's Prowess Database

14.6 DUPONT ANALYSIS

The most important aspect of a firm's operations is the rate of return the firm is able to generate on the equity investment made by the shareholders. Equity shareholders are the real owners of the firm and take all the risk. Hence, the Return on Equity (ROE) needs to be analysed in greater depth. This is achieved by the DuPont Analysis, which breaks down the ROE ratio into its three important components. These three components of performance measurement are Profit margin, Asset turnover, and Equity multiplier.

$$\textbf{ReturnonEquity (ROE)} = \frac{\textbf{ProfitAfterTaxes (PAT)}}{\textbf{Equity}}$$

$$\textbf{ReturnonEquity(ROE)} = \frac{\textbf{218.65}}{\textbf{660.69}} = \textbf{33.09\%}$$

This can also be written as a product of the above three components as follows:

$$\mathbf{ROE} = \frac{\mathbf{ProfitAfterTaxes}}{\mathbf{NetSales}} \times \frac{\mathbf{NetSales}}{\mathbf{TotalAssets}} \times \frac{\mathbf{TotalAssets}}{\mathbf{Equity}}$$

Net Profit Margin | Asset Turnover | Equity Multiplier

$$\mathbf{ROE} = \frac{\mathbf{218.65}}{\mathbf{1890.50}} \times \frac{\mathbf{1890.50}}{\mathbf{1613.73}} \times \frac{\mathbf{1613.72}}{\mathbf{660.69}}$$

$$\mathbf{ROE} = \mathbf{115.57\%} \times \mathbf{117.15\%} \times \mathbf{244.25\%} = \mathbf{33.09\%}$$

Net Profit margin indicates profitability; asset turnover ratio evaluates the efficiency in the usage of the assets of the firms, while Equity Multiplier is a proxy for financial leverage. Thus, the DuPont Analysis highlights that a firm may increase its ROE by maintaining a high Net Profit Margin, efficient use of total assets and optimum leverage. If the ROE falls, the firm must investigate these three financial performance measures to identify the reasons for such fall and take corrective steps.

14.7 USING FINANCIAL RATIOS TO PREDICT BANKRUPTCY

Edward Altman (1968) investigated cases of business failures in the US. In his study, he included a sample of 66 industrial companies, of which 33 were bankrupt firms and 33 non-bankrupt firms for 20 years, from 1946 to 1965. Based on the data provided by the annual reports of the companies, Altman examined a total of 22 potential financial ratios out of which he retained five ratios that had the highest significance based on statistical techniques that were most important ratios in predicting business failures. Altman used the Multiple Discriminant Analysis (MDA) technique, which categorised firms into those that are likely to fail and those that are not likely to fail. Based on his study, Altman developed the following formula, which combines these five ratios and assigning weights to each of these ratios to arrive at one composite score, which he called the Z-score:

Z-score = $1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$

Where,

X_1 = Net Working Capital to Total Assets

X_2= Retained Earnings to Total Assets

X_3= Earnings before Interest & Taxes to Total Assets

X_4= Market Value of Equity to Total Liabilities

X_5= Sales to Total Assets.

X_1 = Net Working Capital to Total Assets is a measure of the net liquid assets of the firms relative to the total capitalisation. As discussed earlier, Net working Capital is the difference between the current assets and current liabilities. This ratio explicitly considers the liquidity and size of the firm.

Generally speaking, a company that is experiencing consistent operating losses will have shrinking current assets in relation to its total assets.

X_2 = Retained Earnings to Total Assets: Retained earnings are the accumulated earnings/ profits of the firm. In this ratio, the age of a firm is implicitly considered for a relatively old, well-established company will most likely have a higher ratio than a relatively young firm, which are more susceptible to fail in its initial years of existence.

X_3 = Earnings Before Interest & Taxes to Total Assets: This ratio measures the productivity of the firm's assets, independent of the effects of leverage or tax. As the existence of a firm is based on the earning power of its assets, this ratio is appropriate to study business failures.

X_4 = Market Value of Equity to Total Liabilities: This ratio indicates how much the firm's assets can decline in value relative to the market value of its equity and become bankrupt.

X_5 = Sales to Total Assets: This ratio (called the Capital Turnover ratio) indicates the sales generating ability of the firm's assets.

According to the study by Altman, if the Z-score of a firm was greater than 2.99, then the firm is financially sound, while if the score is less than 1.81, then the firm is financially not healthy and is most likely to go bankrupt. Firms with Z-score between 1.81 and 2.99 fall in the grey zone wherein the model could not predict business failure or otherwise.

The following illustration shows the calculation of the Z-score for two hypothetical firms – Firm A and Firm B. Based on the financial statements, the five ratios have been calculated as indicated below, and the Z-score for each firm estimated. From the ratios, it appears that Firm A is a relatively weak firm as compared to Firm B.

Ratios	**Weights**	**Firm A**	**Firm B**
Net Working Capital to Total Assets (X_1)	1.2	10.50 %	45.50%
Retained Earnings to Total Assets (X_2)	1.4	1.76%	31.50%
Earnings Before Interest & Taxes to Total Assets (X_3)	3.3	8.56%	34.50%
Market Value of Equity to Total Liabilities (X_4)	0.6	89.00 %	167.00 %
Sales to Total Assets (X_5)	1.0	80.00 %	167.00 %
Z-Score		1.77	4.80

The Z-score for Firm A works out to 1.77 while for Firm B is 4.80, which is arrived at by multiplying the weights with the respective ratios. As the Z-

score of Firm A is less than 1.81, it is most likely to go bankrupt, while for Firm B, the Z-score is greater than 2.99; it is a financially strong company.

The above Altman's model was for manufacturing and listed firms. Subsequently, he revised the model for unlisted firms and non-manufacturing firms. The revised model is as follows:

Revised Z-score = $6.56X_1 + 3.25X_2 + 1.05\ X_3 + 6.72\ X_4$

where X_1, X_2, and X3have the same meaning as above, while X4 = Book Value of Equity to Total Liabilities.

If the Revised Z-score is greater than 2.9, then the firm is considered financially healthy and not likely to go bankrupt. If the Revised Z-score is less than 1.23, the firm is considered financially weak and likely to go bankrupt. Firms with Revised Z-score of greater than 1.23 and less than 2.9 fall in the grey zone.

Currently several advanced tools are used for predicting bankruptcy including use of Artificial intelligence.

14.8 APPLICATIONS OF FINANCIAL RATIOS

Ratio analysis is an important technique of analysing the financial performance of firms. Different stakeholders use financial ratios to evaluate the firm's performance from their own perspective. The following are, therefore, the applications of financial ratios.

1. Assessing the performance of firms: Ass stated above, different stakeholders want to evaluate the financial performance of firms from their perspective. Shareholders want to evaluate if the business enterprise is profitable and financially strong or not. Short-term creditors and suppliers of raw materials want to know if the company would be able to repay the short-term credit which they have provided. Lenders of long-term finance are interested in the long-term solvency and profitability of the firm. Management is interested in the overall performance of the firm. Thus, each stakeholder wants to examine and evaluate the financial statements from their own perspective. Ratios are also used to rank companies. For example, financial newspapers (like Economic Times, Financial Express, and Business Standard), and websites (Like Money Control, Yahoo) rank companies on an annual/ quarterly performance.
2. Credit Analysis: Ratios are used to judge the creditworthiness of potential customers. Ratios like current ratio/Acid-test ratio, debt-equity ratio, Interest coverage ratio are evaluated to decide whether credit should be extended or not, or further loans should be sanctioned or not.
3. Forecasting Bankruptcy: As discussed above, Altman's Z-score is an important technique to predict the chances of business failure.
4. Valuing Firms: Valuation of firms is an important aspect of the usage of financial ratios. As the valuation of firms is dependent on the

profitability and efficiency of a firm, the valuation ratios such as PE, EV-EBITDA ratio, MV-to BV ratio are used extensively by analysts.

Issues in using Financial Ratios

Although ratio analysis is an important tool in the analysis and evaluation of the performance of a firm, there are certain issues while using them. Some of the issues in using the financial ratios are as follows:

1. The financial ratios are calculated based on the financial statements – the Balance sheet, Income statement and Cash flow statement. These statements, as we know, are historical in nature. They summarise the financial transactions of the firm as they occurred in the past. Hence the financial ratios based on these historical statements are backwards-looking and are at best post-mortem of past events. An independent (outside) analyst who does not have access to the future plans of the firm, relying on the past data may not predict the future performance and financial position of the firm.
2. No two companies are exactly similar in their asset profile, capital structure, technology being used, markets, products etc. Further, companies also change over a period of time. Hence, as the profile of companies' changes, it becomes difficult to compare the ratios; the comparison of ratios with other firms or over time periods might become problematic.
3. Although the financial ratios have been defined as discussed in the previous chapter, there exists a wide variation in the definition of certain terms, which makes the comparison of ratios difficult. For example, though the Debt-Equity ratio is well defined, what constitutes Equity is subject to variation as some may include Preference capital in Equity while others may not include it.Similarly, the term profits are also subject to different interpretations.
4. Besides comparing the ratio over time, they are sometimes compared with industry averages also. Such a database is maintained by the Reserve Bank of India. "Prowess" database maintained by the Centre for Monitoring Indian Economy (CMIE) is another such database of Indian firms. Such industry average ratio is based on all the firms that constitute that industry which may vary in size. Some firms may be very large in terms of sales and profits, while some firms may be very small. The industry average would give equal attention to both these types of firms. Comparing a firm's ratios with such an average ratio might be misleading.

14.9 SUMMARY

In order to understand the financial statements of a firm and make conclusive comments on the financial performance, we need to compare the ratios over time and compare them with other similar companies. Techniques such as Comparative Statements Analysis, Common size analysis, Trend Analysis, and Inter-firm analysis are popularly used. DuPont Analysis decomposes the performance measure of Return on Equity into its three important

components that need to be investigated in depth for reasons for poor performance. Altman's Z-Score is used to predict the possibility of a firm going bankrupt in the near future. Properly combined financial ratios are used to assess corporate excellence, judge creditworthiness, predict bankruptcy, value shares. Although financial ratios are a useful tool, there are certain issues encountered; hence ratios should not be used blindly but with due caution.

14.10 KEY WORDS

Comparative Statement Analysis, Common-size Analysis, Trend Analysis, Inter-firm Analysis, DuPont Analysis, Altman's Z-score.

14.11 TEST YOUR UNDERSTANDING:

Long answer Questions

1. Discuss the difference between Comparative Statement Analysis and Common Size Analysis.
2. Explain in detail the Du Pont Analysis.
3. Describe the Altman's Z-Score model for predicting the bankruptcy of a firm.
4. Discuss the used and applications of ratio Analysis.
5. Discuss the problems and issues faced in analysing the financial statements.

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BLOCK 5
EMERGING ISSUES IN ACCOUNTING

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UNIT 15 HUMAN RESOURCE ACCOUNTING

Objective

After studying this unit, you should be able to

- Understand the concept of human resource accounting
- Understand the various developments which led to the focus on HR accountability
- Know about the various similar concepts and techniques
- Explain the different human resource accounting models

Structure

15.1 Introduction

15.2 Approaches to Human Resources Accountability

15.3 Human resource accounting as Management Decision Tool

- 15.3.1 Investment Decisions
- 15.3.2 Human Resource Planning
- 15.3.3 Performance Management System

15.4 Human Resource Accounting Measurement Models

- 15.4.1 Original Cost Approach
- 15.4.2 Replacement Cost Approach
- 15.4.3 Opportunity Cost Model
- 15.4.4 Standard Cost Model

15.5 Methods Based on Value

15.6 Summary

15.7 Self-Assessment Questions

15.1 INTRODUCTION

During the past few decades, the composition of the Gross National Product of the major global economies has been changing from manufacturing to services. This trend started after the end of World War II in 1945. This trend started with USA and later on spread to Europe and Japan.In recent years this trend is also visible in India, where services contribute to a significant portion of GDP.

From the beginning of the 20th century, there was a continuous effort to develop evaluation strategies for the Human Resource Investment by the firm. In other words, there is an increasing demand for accountability regarding the value creation by the human resource function. The management is interested to see a link between HR program's and the company's bottom line (profit). Managers, in general, believe that investing in people and providing appropriate HR interventions, initiatives and

solutions can result in a high and sustainable bottom line over a medium horizon, but the problem is that there is no direct link between the bottom line and HR function. This problem partly arises from the fact that HR investments are treated as revenue expenditure rather than as capital expenditure; more of this, we discuss human resource accounting. In the absence of any direct correlation between HR interventions and the bottom line and lack of measurement of benefits of HR intervention, it becomes difficult for managers to decide, for which program to invest, how much to invest and whether a particular program adds value or not.

The ambiguous nature of HR intervention's impact on the bottom line makes the task of managers difficult to decide how much commitment to make in terms of resources and time for HR programs. HR intervention, by its very nature, demands the commitment of continuous resources. However, due to the lack of measurable, tangible bottom-line results, the resource allocation is sporadic and largely inconsistent with the real requirements of the HR function.

In a nutshell, the increasing accountability demanded from the HR department for the resources they demand and consume led to the evolution of various techniques to measure and evaluate the contribution of HR department towards the profit of the organisation. Now when we are discussing accountability let us briefly discuss the major developments that have led to the increasing focus on accountability. All these developments are somehow or the other related to the returns generated by the HR functions.

1. **The triple bottom line:** Traditionally, the success of commercial enterprises is measured by the profit they make, ignoring the fact that the current business operations may have a negative impact on the environment, health of society, social well being, future financial success and resilience of the enterprise. Triple bottom line theory attempts to include the impact of business operations on the environment, health, and social well being in the business success metrics. The focus of this concept is to account for all the costs associated with business operations. These costs are not borne by the business but by the society as a whole.For example, water or air pollution generated by business operations will have a bearing on the whole of the society. The triple bottom line categories are often referred to as People, Plan and Prosperity.

2. **Best Place to work or employers of choice:** Since 1990, several business publications are coming out with a list of companies preferred by employers, both newly recruited and serving ones. Many organisations strive to be on this list so that they can retain existing valuable employees and attract new talent.

   In order to make a place in these kinds of rankings, organisations often drive HR programs to enhance the work environment, and create new programs that offer new benefits, perks and perquisites and unparallel work opportunities. These kinds of HR interventions can lower the attrition rate (higher retention) and reduce the recruiting costs but may

not add enough value to overcome the cost of running these programs. In order to gauge the effectiveness of these kinds of programs, a measurement process is required which can compute the payoffs (returns) of these investments, particularly when the cost of program is significant.

3. **HR investment and Macro-level studies:** Macro-level studies have been undertaken to establish the link between HR investment and profitability or productivity. However, these studies have failed to establish a significant relationship between HR investment and profitability and also failed to demonstrate a cause and effect relationship. For example, a profitable and productive company will have access to funds that can be used to initiate new HR programs and initiatives to make the company an attractive place to work. However, this does not imply that HR programs and initiatives have led to increased profitability and productivity.

4. **Human Capital Management Focus**: The rise of high tech industries and the shift of economic activities from agriculture and manufacturing to the service sector have put the focus on human capital management. In the early development,the focus was on HR accounting, where an attempt was made to account for the value of human resources in the traditional financial reporting framework. Later on, benchmarking techniques were used to compare key indicators. These key indicators are compliance, compensation, safety, retention, attrition and absenteeism.

5. **Accountability demand from management:** As the demand for resources is often competitive among the various divisions, the management often demands to show the value creation potential for the resources demanded and consumed by the division, and in the absence of value creation, the particular division may face budget cut. This problem is more acute in the Human Resource department as the outcome of their efforts is in the form of intangibles which by their very nature are difficult to quantify and measure. In some situations, this lack of ability to demonstrate the value creation potential has even led to outsourcing the major parts or even all of the HR functions.

   The management often avoided this level of scrutiny as most of them believed that the more the investment in people,the more they are prepared to achieve sustainable competitive advantage and high performance in business operations and face the dynamic environment. Nowadays the managers take decisions based on data, and therefore they demand data before committing any resources.

6. **HR Disasters:** HR department is an essential unit of modern firms and organisation,and its role is much more amplified in times of brewing crisis and crises. Human resource practices have an impactful influence on people and have consequences that impact the organisation in the long run.

7. **HR Technology:** Technology, in general, has changed the way anorganisation functions and operates. With the advent of cost-effective

technology, many HR functions like compensation and perquisites administration, payroll management, employee record keeping, some parts of recruiting process, training and orientation have been automated. This automation process in HR functions has led to the elimination of some HR roles and designations.Many of the HR functions have been shifted to other areas like finance and information technology departments. This may sometimes result in a disconnect between HR departments and other departments where business activities take place.

On the positive side, HR technologies have enabled HR departments to collect massive amountsof employee and performance data which isorganised, integrated, analysed and reported in a meaningful way. This enables the HR department to measure the impact of HR interventions.

15.2 APPROACHES TO HUMAN RESOURCE ACCOUNTABILITY

Since the early 60's, there has been a growing focus on measurement and evaluation of human resource function, and these approaches have changed with time. In order to evaluate the contribution of human resource function in enterprise performance, human resource function must be measured and evaluated, but choosing the suitable parameters and approach is a significant challenge. Below we discuss some of these techniques/approaches. These techniques are the precursor of the modern day Human Resource Accounting technique.

HR Management by Objectives (MBO): As per this technique, the HR department develops specific objectives. These objectives are developed based on the expectations of management regarding targets of various functional parameters. These targets are perceived to be necessary to achieve an adequate level of performance. Measures like turnover, absenteeism, job satisfaction, occupational health, compensation, cost, expenses, productivity, and wastage reduction are quantifiable, and many of these are objectives for many HR functions. Whatever measures are determined and developed must be related to organisational performance at the macro level, and at the micro level, they must be able to determine the contribution of HR function to the organisation.

Employee Attitude Survey: This technique is used to evaluate the effectiveness of the HR department. It is used to understand the link between employee attitude and organisational performance.

Studies have found that the companies reporting higher than industry average profits are high users of employee surveys whereas companies which were less profitable rarely used these surveys. It has also been established that companies using employee surveys have a positive co-relationship between organisational performance and attitudes of employees. This method is often used with other methods.

An advancement of this technique is **Human Resources Index (HRI),**through which the organisations compare their progress over time and

with the other organisations. This technique of HRI has been used by Mayflower group, which consists of 30 companies, some notable members being IBM, Xerox and General Electric. HRI enables the exchange of cross-organisational attitudinal data. This technique can measure attitudes, satisfaction level of employees and commitment to organisational goals. In addition, this can also be used as a diagnostic tool to identify trouble spots and areas which require concentrated efforts of the management in particular human resource department.

HR Reputation- HR functions are designed to serve the various constituents of the organisation. One of the ways in which the effectiveness of the HR function can be evaluated is through the feedback of the constituents. Moderate evidence is available to suggest that "HR effectiveness as perceived by the constituents is positively related to overall organisationalperformance." The important factors as perceived by the constituents while judging HR function effectiveness are:

i) Open communication channels.
ii) Transparent and high performance standards.
iii) Remuneration and rewards based on performance.
iv) Effective use of employee skills and abilities
v) Employee participation in work decisions
vi) Advancement opportunities
vii) Identification and development of high potential managers.

Satisfaction of the constituents is an important parameter, but empirically there is little evidence to suggest a relationship between constituents' satisfaction and organisationalperformance. This method also ignores the HR function outcomes on the bottom line.

HR Auditing: An audit is an investigative, analytic and comparative exercise to gauge the effectiveness of the methods and processes involved in accomplishing a particular task. HR audit is undertaken to measure the effectiveness of the HR function. HR audit involves a systematic search leading to the gathering, compiling and analysingdata for a specified period of time.

With the HR area moving from the service arena to the strategic arena, there has been an expansion in the extent, scope and type of information being audited. The main categories for which HR audit is undertaken are department/ unit mission, organisation, Personnel, labour relations, recruitment and selection, training and development, employee relations, employee benefits, compensation, human resource planning, organisationalplanning & development, equal employment opportunity, safety and security, facilities and documentation.

HR audit is an analytic tool that brings out how well or poorly HR practices and processes are implemented. This exercise provides baseline data, which is used to assess the effectiveness of HR function. HR auditing ensures that all components of an effective HR program are in place, and functioning as

they are intended to function.There is little direct connection of audit information with that of organisation performance.

HR Case Studies: Another approach to measure and evaluate the impact of HR programs/ intervention is the case study approach. In this approach, the success of standalone programs, policies, practices or HR interventions is examined, evaluated and documented. These results are presented to selected audiences and key managers.

Case studies are developed using data generated by HR interventions often coupled with reactions and feedback from the participants and beneficiaries of the HR interventions. HR case studies can be used by management to increase or decrease allocation to HR function depending upon the facts bought out by the case study. In addition, this can also be used as a tool for organisational learning and deciding on future allocations for HR functions. One of the drawbacks of this technique is that it captures on shot information, whereas a good evaluation technique shall represent an ongoing evaluation representing a balance of the performance of HR function or program. Despite this weakness, this technique along with other approaches can be an important part of an organisation's overall measurement and evaluation process.

HR Cost Monitoring: HR managers generally use salary and perquisite expenses as HR costs, but there is a lack of understanding of how a change in HR practices can lead to a change in the cost structure of human resources. One approach to evaluating HR performance with reference to cost is to develop cost standards and compare them with actual cost incurred. Comparing actual cost with internal cost standards may not be that effective as comparing the actual cost with similar external organisations.

HR cost per employee is a common measure used to monitor HR costs. Table 15.1 depicts some of the frequent HR costs monitored by the organisations.

Table 15.1 Typical HR Costs

Employment • Cost per hire • Orientation cost	Fair Employment • Cost per complaint • Cost of litigation
Training & Development • Cost per employee • Total cost as a percent of salary	Labour Relations • Cost per grievance • Cost of work stoppages
Compensation • Compensation Expense as a percent of operating expense • Total compensation costs	Safety and Health • Accident Costs • Cost of penalties and fines
Benefits/ Perquisites • Benefits costs as a percentage of the salary bill • Health care cost per employee	Overall HR • HR cost as a percentage of operating expenses • Turnover cost

Competitive Benchmarking: Benchmarking, as understood in common parlance,measures key indicators of one's own organisation and compares it with the organisation which is performing ideal/best in the industry. Benchmarking is one of the strategies used in the Quality movement, and a few of the pioneers in benchmarking were Xerox, Motorola, Kodak and Texas instruments. In the context of the HR function benchmarking is applied by developing key measures that represent the output of the HR function. Benchmarking can be used to modify and improve internal processes leading to enhancement in quality and cost reduction. Benchmarking is a continuous learning process with an intended outcome of improvement in overall HR effectiveness.

The competitive benchmarking process application has been effective in the area of quality management and production, but its application in HR area is faced with a challenge due to the scarcity of benchmarking data related to HR function.

Key indicators: Key indicators are the measures that reflect the major efforts of the HR department. Some of these measures are linked to the organisationalperformance. Key indicators includea set of quantitative measures such as accident rate, absenteeism, turnover, the average time to recruit etc.

Table 15.2- shows the various key indicator of the HR department.

Employment • Average days taken to fill open requisitions • Ratio of offers made to number of applicants	Salary Administration • Percentage of overtime hours in straight time • Ratio of average salary to midpoint by grade level
Equal Employment Opportunity • Ratio of EEO grievances to the employee population • Minority representation by EEO categories	Benefits • Percentage of sick leave to the total pay • Average length of time taken to process claims
Training • Percentage of employees completing training programs per job category • Training hours per employee	Work Environment/ Safety • Frequency/severity ratio of accidents • Ratio of OSHA citations to number of employees
Employee Appraisal and Development • Distribution of performance appraisal ratings • Reliability of appraisal ratings	Labour Relations • Percentage of grievances settled • Average length of time to settle grievances
Careers • Ratio of promotions to number of employees • Average years/months between promotions	Overall Effectiveness • Turnover rate • Absenteeism rate

Source: Adapted from Gomez Mejfa, L.R., Balkin, D.B., and Cardy, R.L. Managing Human Resource., Englewood Cliffs: Prentice Hall, 1995.

Various studies have been conducted to identify, develop and relate key indicators to organisational performance. One of the studies identified three measures reflecting the HR department contribution. These three measures are:

- Productivity as reflected in the cost
- Quality as reflected in repair rate
- Employee relation as reflected in absenteeism and suggestions.

In another study involving 25 manufacturing plants of a company, an attempt was made to relate two measures of organisational performance viz. direct labour efficiency and quality of product to HR variables like attitudinal climate, absenteeism rate, grievance rate, disciplinary action rate and overtime ratio. The study established that each of the HR variables was significantly related to identifying organisational performance measures except for absenteeism which was not related to the quality of the product.

An analysis of several studies concerning high performance work practices by the U.S. Department of labour found a positive correlation between high performance work practices and productivity and long term financial performance. High level work practices often lead to higher productivity, and their impact is enhanced when various high level work practices are implemented together in a system.

HR Effectiveness Index: HR effectiveness index is a single composite index whose constituents are various HR variables that impact organisational performance. The basic principle governing the construction of HR effectiveness index is to combine various variables receiving different weights according to their significance in organisational performance. The constants were based on plant specific factors.

One of the first examples of such an index is the **Employee Relation Index (ERI),** developed by General Electric in 1950. This index constituted of eight indicators selected on the basis of employee behaviour, and some of the indicators were absenteeism, visit to plant dispensary, terminations, grievances and work stoppages. ERI can evaluate HR policies and practices, trace trends in employee relations, find areas of concern and trouble spots, perform HR functions more effectively and control personnel costs.

When ERI values were compared with plant profitability, it was found that plants with a higher ERI were more profitable, but the relationship was found not to be statistically significant.

Another HREI is the **Human Resource Performance Index (HRPX)** used to evaluate HR functions such as selection, compensation, development and retention.

Another study found that the presence of sophisticated HR practices has an impact on financial performance along with effect on turnover and productivity.

Table 15.3 depicts the sophisticated HR practices that have an impact on financial performance.

Sophisticated HR Practices Linked To Firm Performance

- Employment tests for selection
- Formal performance appraisals
- Appraisals linked to compensation
- Participation in variable pay or company incentive plans
- Formal job analysis
- Nonentry jobs filled from inside the organisation
- Access to a formal grievance procedure
- A formal information sharing program
- Attitude surveys
- Some form of labour/management cooperation

Source: Thornburg. L. "Yes, Virginia, HR Contributes to the Bottom Line, " HR Magazine, August 1994, pp. 62-63.

25 Another comprehensive study on HREI involving 71 organisations from eight industry segments identified 6 HR function variables which have a bearing on organisational performance.

- HR expenses/total operating expenses
- Total compensation/total operating expenses
- Total cost of benefits/total operating expenses
- Training and development expenses/total employees
- Absence rate
- Turnover rate

This HREI developed represented a composite of six measures.

An index is a good measure of evaluation if constructed properly, taking all significant variables into consideration. It is simple to compute and easy to understand. It can be used to compare one organisation with another and for internal control and goal setting.

HR Profit Centers: "A profit centre is a division of a company that independently adds or is expected to add to the bottom line (profit) of the company". It is treated as a separate, stand-alone business, responsible for its expenses.

Precise evaluation of the contribution of HR department on the bottom line can be done when HR department is treated as a profit centre.

Traditionally, HR department is seen as an expense centre in which costs are accumulated. However, there has been a gradual shift where HR Expenses are seen as investments that can contribute to profits. Moving a step further, especially in the large organisations, HR department can even function as a profit centre.

When the HR department operates as a profit centre, it establishes competitive rates for the services it provides to the various other departments of the organisation, and these departments are charged for the services which they consume. Further, the outside firms can also compete with the internal HR department to provide these services. Services or programs sold to user departments are training and development programs, compensation and benefits administration, recruiting, safety and health programs, negotiations with trade unions and many others.

For the HR department to operate as Profit Centre, the user department like production, sales, marketing, operations, and engineering are to be charged for the HR services they demand and use. At the same time, the user departments also have an option to engage outside firms to provide HR services if these services are provided at competitive rates. For this approach to succeed, HR department has to become client-oriented and cost and quality conscious.

If services are priced on a competitive basis, the profit generated by offering these services is the financial return on the investment allocated to the HR department.

Some of the organisationsthat are operating the HR department as a Profit Centre and allowing HR department to sell services to the outside organisations include DuPont, General Motors and Xerox.

HR department as a profit centre is an evolving concept and is a significant departure from the traditional HR management practices. The concept of charging the user departments for services may face resistance from the user departments. HR data is strategic in nature, and the organisationsmay not be vary of sharing the same with the outside firms. In view of this, it is challenging to implement this concept in many organisations.

15.3 HUMAN RESOURCE ACCOUNTING AS MANAGEMENT DECISION TOOL:

The organisationalgoal of wealth maximisationrequires allocation and administration of resources. Allocation and administration of resources require quantification and in the absence of quantification ,allocation may be distorted, leading to sub-optimum decisions by managers. This is particularly relevant for intangible resources like human resources. However, empirically, it is not yet established that human resource accounting information helps management make optimum decisions that may be impacted either way in presence/ absence of Human Resource Accounting information.

15.3.1 Investment Decision

The presence of HRA information in the financial statements may change the way in which the investment decisions are undertaken by managers and creditors (including banks and financial institutions). Especially in the context of outside investors and asymmetric information, the HRA information will influence the performance assessment of companies and eventually affect their judgments. HRA information makes a difference in investment decisions but the correlation between HRA information and adopted investment decisions is still unclear. Another aspect is the differentiation between non-financial and financial HR information. HR information in the financial form (HRA information) influences corporate investors' decisions, whereas HR information in non-financial form has considerably lesser influence. HRA information is relevant and influences optimal investment decisions, and often inputs for HRA is the Original Cost Method.

15.3.2 Human Resource Planning

Human resource planning is the process for acquisition, utilisation, improvement and preservation of human resources of an organisation. From a strategic perspective, HRP is defined as "the process by which management determines how an organisation should make from its current manpower position to its desired manpower position."

HRA figures/ information can assist managers in developing a cost matrix for measuring the cost of recruitment. This cost matrix guides managers in choosing the best alternative selection process. Simultaneously HRA plays a role in internal personnel management, employer turnover management, layoffs and design of performance evaluation measures.

The figures coming out of the HRA exercise influence and aid in the decision making process by providing information on specific HR tasks such as training, assessment and development.

One of the major challenges in using HRA in HRP is the absence of information and objective monetary values of HR variables. For example, the loss from employee attrition/turnover cannot be assessed as the value of employees is known only to their immediate workgroup and that known value is also subjective.

15.3.3 Performance Management System (PM)

Performance Management Systems (PMS) is the systematic approach to measure and manage employees' performance in light of the predetermined organisational goals. PMS is used to support decisions in the area of training, career development, and layoffs. PMS process starts withsetting clear and specific performance expectations.Next the achievements are measured, followed by formal and informal feedback.

The main element of PMS is the measurement process, and HRA provides the input for the measurement process. The various categories of human

resource investments are costs associated with recruitment, hiring, orientation, training and integration with the existing workforce. These estimated costs provide input to estimate the replacement cost of workforce at various levels. This estimate of replacement cost goes into the planning of workforce acquisition.

HRA can be used as an alternative accounting system to measure the cost and value of employers for management decisions like training and development. For training and development purposes, HRA information can be used to gauge the potential worth of individuals, and if a reasonable improvement is not seen after training, resources can be directed to those employees whose potential and performance could be enhanced.

For a well functioning and reliable evaluation process to operate HRA can provide inputs regarding the value of individual employees of an organisation.

Training and Development:

For an organisation to maintain a competitive advantage, continuous training and development programmes are required. For these programmes to be successful, the management shall be able to assess the value of these programmes and estimate the expected payoffs or return on investment. In order to estimate value expected payoffs, HRA is an essential tool through which cost can be measured for alternative training programmes and in choosing the best alternative training programmes.

Compensation Management System:

Compensation management is the process of establishment and implementation of policies, programmes and practices that determine the salary, incentives and benefits each employee receives. A good compensation management system should follow a systematic and scientific approach that should result in a fair, equitable and logical compensation.

Information from HRA can be used by the salary administrators through which they can design the salary structure in a fair, objective and transparent way. Another aspect of HRA is that it also affects the employee bargaining power both within and outside the organisation. HRA information allows rewards to be administered based on a person's value and utility to the organisation HRA information can be used for wage revision and salary reviews.

Human Resource Accounting (HRA) Measurement Models:

Human Resource value is an extension of the concept of the general economic value of resources. As the contribution of tangible resources started declining in the economic returns and the contribution from non-tangible started increasing,especially from human resources (technology, qualified and highly skilled), need was felt for generating information regarding the valuation of human resources and consequently accounting for this information in an alternative way. In traditional accounting, all the expenses related to human resources are debited to the profit and loss account of that

year, viz., the human resource expenses are treated as revenue expenses. In the various alternative methods of HRA the human resource expenses are treated as capital expenditure viz the whole expenses are not taken to profit and loss account. However, only a part of the expenses are taken to the profit and loss account, and the rest of the expenses are taken to the balance sheet as assets which is to be amortised over a period of time. This time period will depend on the useful life of the human resource asset.

The information regarding the value of Human Resources is a key input for managerial decision making and internal management. Apart from this, the information is used by investors, creditors, financiers and government agencies for their purpose. Various approaches developed for measuring the value of human resources factors in nature and the use of such data. Methods to account for human resource value are classified into the following two categories.

1) Methods based on Cost
2) Methods based on value

Methods Based on Cost:

In accounting, the term cost is used in varied ways, including historical cost, replacement cost, current cost, direct and indirect cost, fixed and variable cost and standard cost.

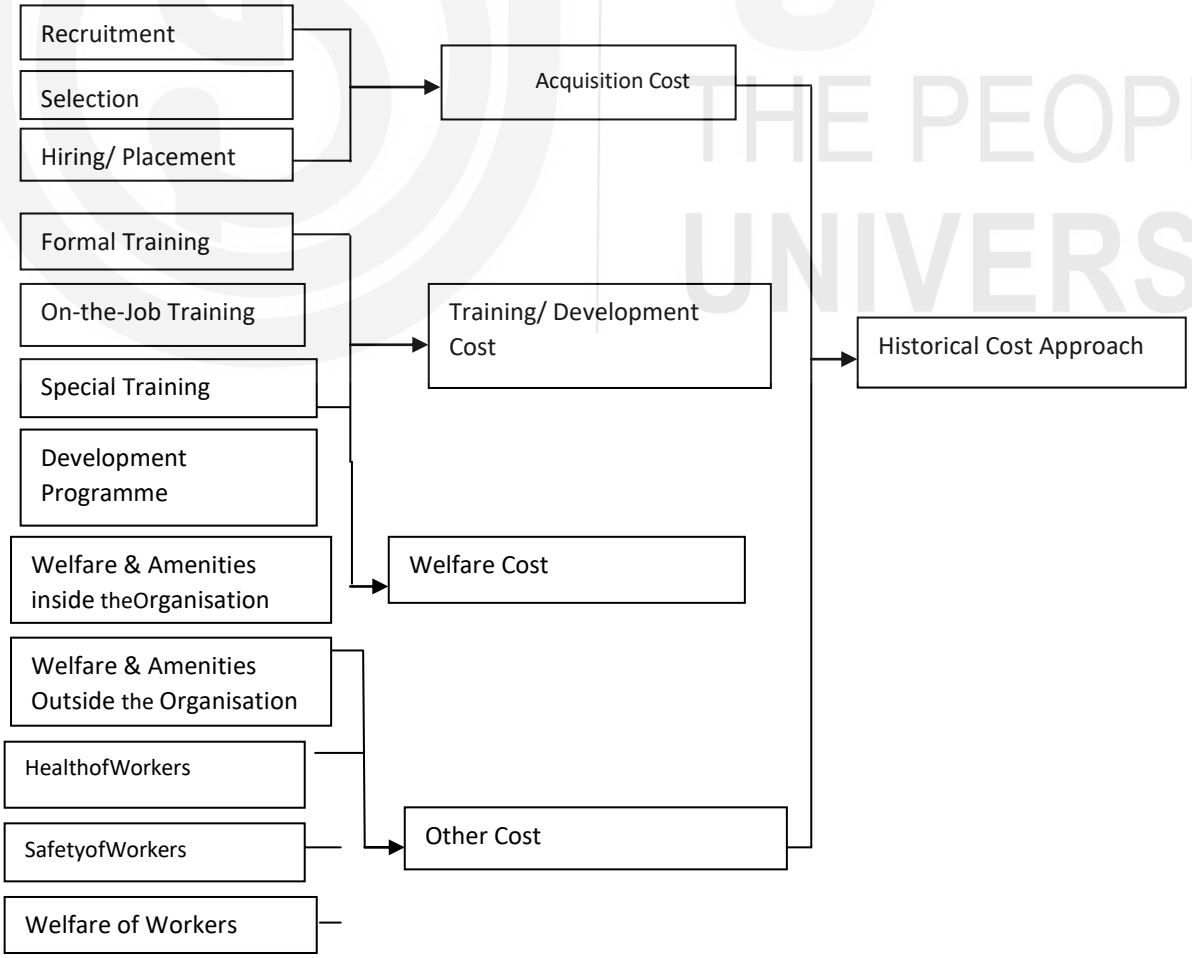


Figure 15.1: Original Cost Approach/ Historical Cost Approach

The most common way cost is understood is in terms of the sacrifice made, something foregone to acquire an asset or service. Conceptually, all costs will be either the component of expenditure or asset. An expense is a cost consumed during the current accounting period whereas asset is the portion of cost that is expected to generate economic benefits in further. The fundamental problem in HRA is the measurement of the component relating to expenditure and assets. Benefits or returns from cost can be deferred and extended over a period of time.

The cost-based models are based on the cost of human resources to the organisation. This approach involves the computation of the organisation's investment in employees. The categories for which the cost is computed are acquisition cost, training & development cost, welfare cost, learning cost, separation cost's other costs. These costs are: Capitalised and amortised over the useful life of the asset. As a result of capitalisation the human resource cost is recorded as an asset rather than an expense. Consequently, only the cost amortised will appear in the profit and loss account and the remaining cost will appear in the balance sheet as an asset. Based on cost, the following methods are used for human resource valuation.

This model was developed in 1967 by William C. Pyle along with R. Lee Brummet and Eric G. Flamholtz. As per this approach, the various cost incurred in the human resource investment subsystem is categorisedunder four groups:

i) Acquisition Cost

ii) Training and Development Cost

iii) Welfare Cost

iv) Other Cost

The actual cost incurred on these four categories is capitalisedand amortised over the expected useful life of the human resource. Before we move further, let us understand the meaning of capitalised and amortised over a period of time. Human resource expenses are revenue expenses and are taken to profits loss account of the period in which they are incurred. In human resource accounting, these expenses are not treated as revenue expenditure but as capital expenditure. When an expense is treated as capital expenditure, the expenditure is not charged to profit and loss account but taken to the balance sheet as an asset is written off in the form of depreciation/amortisation, and this portion (amortisation) is charged to profit and loss account.

Now, let us briefly discuss the various subcomponents of the four subcategories mentioned above.

Acquisition cost: the cost incurred in acquiring the human resources suitable for the job in question. Acquisition cost consists of the expenses incurred on recruitment, selection, hiring and placement. Acquisition cost is the cost of the whole process of acquisition of human resources and is just not limited to the cost associated with the selected human resource but also include the cost associated with the persons who were not selected. Acquisition cost basically comprises of recruitment and selection cost.

Recruitment Cost is the costs incurred to identify the human resources suitable for a particular job, both from within and outside the organisation. The selection cost is the expense incurred to determine who should be selected out of eligible human resources. The cost of selection varies according to the position for which a person/s is/are to be selected. Generally, for higher positions, selection cost is high. Selection cost includes administrative cost of application processing, conduction tests, interview and consulting fees of the selectors. Hiring and placement costs are also part of acquisition costs. These costs are incurred to bring human resources to the organisation and place them on the job.

Training (Development) is aimed to bring a change in employee's skills, knowledge, attitude, social behaviour so that their improved ability enhances the productivity potential both at the individual and organisationallevel. The cost of training includes on the job training, formal training, and special training and development programs.

Welfare costs and other costs are incurred by the employers to provide the employees with an atmosphere that is conducive to good health and high morale, thereby increasing productivity. The expenses related to this are the cost for welfare amenities within the organisation and welfare amenities outside the organisation.

In a nutshell, under the historical cost model, the expenses related to the human resources are clubbed together and capitalisedand subsequently amortisedover the useful life of the human resources. If the human resources are liquidated prematurely due to death, resignation, layoffs, or any other reason,then the amount not yet amortisedschedule.

Replacement Cost Approach

This approach was propounded by Rensis Likert and further developed by Eric. C. Flamholtz based on the concept of replacement cost. This method can be used as an alternative or as a supplement to the historical cost method. This method involves the measurement of cost to replace the firm's existing human resources to find the value of the existing human resource. Suppose an employee leaves an organisation.

Opportunity Cost Method:

Hekimian and Jones proposed this method of Human Resource Accounting to arrive at human resource valuation. In this method, different divisions are involved in a competitive bidding process for scarce employees. The bids are based on the perceived value of the employee and their utility to the division. The successful bid price is the value of that particular human resource, and the bid price becomes part of the investment base.

The main drawback of this method is that it is only able to value scarce human resources.

Standard cost Method:

This method was suggested by David Watson. In this method, the standard annual cost of recruitment, hiring, training and developing the employees (in particular grade) is taken into consideration to calculate the value of human resources. The total standard cost for all employees is the value of human resources.

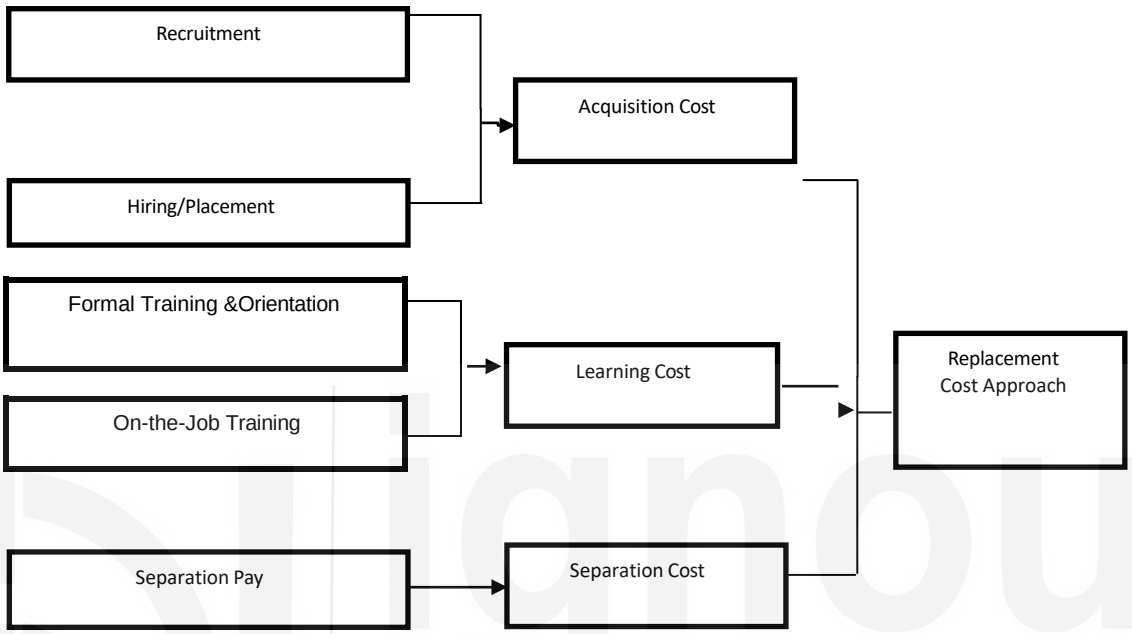


Figure 15.2: Replacement Cost Model



Figure 15.3:- Opportunity Cost Model

Source: William C. Pyle, assisted by R. Lee Brummet and Eric G. Flamholtz and R.G. Barry Corporation, a leisure footwear manufacturer based in Columbus, Ohio (USA) in 1967, developed the Historical Cost model. Replacement Cost approach was first propounded by RensisLikert, and was developed by Eric C. Flamholtz. The opportunity Cost model was first advocated by Hekimian and Jones (1967). Source: Opportunity Cost, Approach Human Resource Accounting: Advances in Concepts, Methods and Application, Flamholtz (1999 pp.55- 57).

Value-Based Models

Lev & Schwartz's Present Value of Future Earning's Model:

This model developed by Lev & Schwartz's (1971) is based on the extension of the economic concept to the human capital is defined as the income of the specific human resource over a period of time which is discounted at a certain rate (usually the cost of capital for the firm or the returns generated by the

firm) to find out the present value of future incomes. This method calculates what an employee's "future contribution is worth to the organisation today". In this model, the value of human resources is estimated as follows:

i) Employees are categorised into specific groups according to their age and skills.

ii) Average annual earnings are determined for different age groups.

iii) Total compensation till retirement is calculated

iv) The total compensation calculated is discounted at the rate of cost of capital.

According to this method, the following formula has been suggested to calculate the value of the employee with age 'r'.

$$E(\mathrm{Vr}) = \sum_{t=r}^{T} \left(\frac{\mathrm{I\ (t)}}{(1+y)^{(t-y)}} \right)$$

Where E (Vr) = expected value of employee with r age and retirement age T

T= retirement

y= discount rate

I(t)= employee annual earning up to retirement age

This model has several limitations. First, the value of an employee is measured in terms of salary, which may not be a true indicator of an employee's worth. Secondly, this model ignores the probability of separation of employeesfrom the firm other than death or retirement, leading to an overstatement of employees expected service life and future earnings. Thirdly this model ignores the change of role of employees within the organisation itself, and lastly, the model fails to incorporate various variables such as seniority, skill, experience.

Flamholtz Stochastic Rewards Valuation Model

This model was developed by Flamholtz (1972). This model is an improvement over the levy & Schwartz's model as it takes into consideration the probability of employees moving from one role to another and leaving the organisation before death or retirement. As per this model, the value of an employee to an organisation is the expected realisablevalue of an employee or expected value of achievement.

Present Value of net benefits obtained (Morse Model)

This model presented by Morse (1973) suggests that the "value of human resources is equivalent to the present value of net benefits derived by the firm from the service of its employees". This method of valuation of human resources involves the following steps.

1. Estimate the gross value of services likely to be rendered by the employees in future. This estimation is based on the individual and collective capabilities of employees.

2. Estimate the value of the future payments to the employees. Future payments include both direct and indirect payments.
3. Determine the excess of future value over future payment.
4. The value of human resources for the organisations is the present value of net benefits, which is found out by discounting the excess of future value over future payments as calculated in Step 3.

The value of human resources to an organisation is equal to the current value of the future services offered by the employees. Mathematically this is expressed as follows

Where

A= Value of human assets to a formal organisation

N= Number of employees

y= Current time

T= Highest time at which an individual currently employed leaves the organisation

$I_i(t)$ = net value of the services rendered by individual i at time t to the organisation $I_i(t) = G_i(t) - E_i(t)$

$G_i(t)$= gross value of services rendered by individual i at time t to the organisation

$E_i(t)$= all direct and indirect compensation given to individual i at time t by the organisation

X(t)= value of the services of all individuals currently employed working together in excess of the value of their individual services at time t.

r= discount rate

In terms of gross value, compensation and excess of group contribution over individual contribution equation can be restated as

Hermanson Model

Hermanson is one of the first to address the issue of HCA. Hermanson (1964) suggested two methods of assessment of human resource value. The first one is Hermanson'sunpurchased goodwill method, and the second is Hermanson's Net Adjusted Present Value Method.

Hermanson'sUnpurchased Goodwill Method:

This theoretical model is based on the assumption that the value of the operating assets must equal the present value of future services that these assets provide. In order to estimate the value of the human resources, this model considers variables related to the economy in which the firm operates and the business level activity of the firm. These variables are the average profitability of the sector in which the firm operates, the average value of assets held by the firm, net profit and return on assets. In this model, it is assumed that firms are going to earn a normal rate of return on their assets. Now, if the firm has any different rate of return, it is assumed that it is due to human resources.

As per this model, the value of the human resources in excess of actual profit earned at a normal rate of return on the total physical assets owned by the firm.

SUMMARY

There is an increasing demand for accountability regarding the value creation by the human resource function. The management is interested to see a link between HR program's and the company's bottom line (profit). Investing in people and providing appropriate HR interventions, initiatives and solutions can result in an increased and sustainable bottom line over a medium horizon. However, the problem is that there is no direct link between the bottom line and HR function. This problem partly arises from the fact that HR investments are treated as revenue expenditure rather than as capital expenditure. In the absence of any direct correlation between HR interventions and bottom-line and in addition to lack of measurement of benefits of HR intervention, it becomes difficult for managers to decide, for which program to invest, how much to invest and whether a particular program adds value or not. Human Resource Accounting is an attempt to address some of these issues. The basic premise of HRA is that expenses related to the development of human resources are capital expenses. They should be treated as an asset because the gains from Human Resource development are going to accrue to the organisation for a considerable period oftime.Various techniques have been developed to value human resources.One set is based on the cost incurred, and the other is based on the value calculated by discounting the future earnings of the human resource.

SELF-ASSESSMENT QUESTIONS

1. Discuss the major developments that have led to an increasing focus on HR accountability.
2. Explain the various approaches to HR accountability,which have evolved over time.
3. How can Human Resource accounting be used as a Management Decision tool.
4. Explain the cost-based methods of Human Resource Accounting.
5. Explain the value-based methods of Human Resource Accounting.
6. Distinguish between
   i) Historical Cost model and replacement cost model
   ii) Replacement cost model and opportunity cost model

UNIT 16 FORENSIC ACCOUNTING

Objectives

After going through this unit, you would be able to

- Understand the dynamics of fraud
- Understand the concept of fraud triangle
- Identify the potential frauds which can occur in various accounting cycles
- Classify the various frauds
- Understand various forensic audit techniques

Structure

16.1 Introduction
16.2 An Overview of Fraud
16.3 Fraud Triangle
16.4 Major Corporate Frauds
16.5 Application of Forensic Accounting
16.6 Type of Frauds
16.7 Fraud origin and Accounting Cycles
16.8 Fraudulent Financial Reporting Schemes
16.9 Improper Revenue recognitions
16.10 Other Financial Reporting Schemes
16.11 IT Tools for Fraud Detection
16.12 Methods of Fraud Detection
16.13 Forensic Audit Techniques
16.14 Summary
16.15 Self-Assessment Questions

16.1 INTRODUCTION

The growth and development of accounting are linked to the growth and development of trade and commerce. A few centuries back, most of the trade and commerce were carried out by individuals with their own money and resources. As the volume of trade and commerce grew, there was a requirement for increased resources, both human resources and finance (capital). The proprietorship form of business gave way to partnership firms, which further transformed themselves into joint stock companies. In contrast to proprietorship/partnership firms, companies delegate the responsibility of running the business to managers with considerable autonomy to take transactional and strategic decisions. The overall supervision is done by the Board of Directors.

This delegation of authority creates an agency cost problem. Agency cost is the internal cost arising from conflict of interest between the principal (shareholders) and the agents (managers).It is hidden in the actions of managers/executives, which are not aimed at maximising the company's profit but rather enriching themselves at the cost of the company's assets. Agency cost can be reduced by the application of forensic accounting, as forensic accounting findings can be used to design the management and supervisory systems of the company leading to effective monitoring.

One distinctive feature of companies is that the funds invested in companies belong to a large number of people and financial institutions. Since the interest of a large number of people (stakeholders) is tied to the company, it is but natural that the information provided by the companies is true and fair and reflective of the actual state of affairs. This information is provided in the form of the annual report and quarterly results. This information is compiled by the company by collating the information provided by the managers of various constituent divisions of the company. The verification of this information is carried out by both the internal and external auditors based on the documentary evidence and explanations provided by the concerned divisions. At this stage, certain irregularities can be detected. However, when irregularities are well planned, accounts are window dressed, and irregularities are carried out in collusion with executives and supervisory managers to cover the tracks, it becomes difficult to track them down. Sometimes these irregularities may be perpetuated by the promoters in collusion with senior managers or, even worse, collusion between senior managers, promoters and auditors. Normal fraudulent activities can be uncovered through regular audits, but when fraudulent activities are complex involving multiple accounts and divisions, the role of forensic accounting arises.

Now let us briefly explain the concept of forensic accounting. Forensic accounting is a multidisciplinary activity involving accounting, auditing, computer forensics, investigation and law. It involves gathering information and evidence which can withstand the scrutiny of a court of law.

The scope of this unit is limited to the frauds committed in a corporate setting.Let us understand the meaning of occupational fraud. Occupational frauds are those in which an employee, manager, promoter or owner of an organisation commits fraud determinant to the organisation.

16.2 AN OVERVIEW OF FRAUDS

In order to get a general understanding of fraud, let us have a look at the finding of the "Report to the Nations, 2020" published by the association of certified fraud examiners. In this study, they examined 2504 fraud cases from 125 countries. These fraud cases had caused a total loss of more than $3.6 billion. A typical fraud case lasts for 14 months before being detected and caused a loss of $8300 per month. It is estimated that organisations lose 5% of revenues to fraud each year, with a median loss of $1,25,000 per case and an average loss of $15,09,000 per case. Asset misappropriation was the most

common and least costly scheme accounting for 86% of the cases and causing a median loss of $1,00,000. In contrast, Financial Statement Fraud schemes are the least common and most expensive, accounting for 10% of the cases and causing a median loss of $9,54,000.

With regards to organisational preparedness, organisations with formal fraud awareness training for employees are most likely to gather tips through a formal reporting mechanism.56% of organisations with formal training programmes were able to gather fraud information through tips, in contrast to 37% of organisations without fraud awareness training.

The use of anti-fraud controls has increased over the last decade, and lack of internal controls for nearly 1/3 of frauds. The presence of anti-fraud controls contributed to lower fraud losses and quicker detection of frauds.

43% of fraud schemes were detected by tips, and half of these tips came from employees. The preferred communication mode was telephone, hotline and email, which were used by whistleblowers in 33% of cases.

Small businesses are more prone to fraud risk than large organisations as large organisations have well-defined structures coupled with structural rigidities and effective internal controls, which are largely absent in small organisations. The probability of certain frauds occurring in small business is high, i.e. the probability of billing and payroll fraud is 2times higher in smaller organisations, whereas the probability of cheque and payment tampering is 4 times higher.

Concerning profile of fraudsters, men accounted for 72% of all occupational frauds causing a median loss of $1,50,000, whereas women employees accounted for 28% of frauds, causing a median loss of $85000.

Owners/promoters committed only 20% of occupational frauds but caused a median loss of $6,00,000, whereas managers and employees caused a median loss of $150,000 and $60,000, respectively. 80% of fraudsters faced some disciplinary action in the past from victim organisations, and 46% of victim organisations did not pursue any legal remedies as they felt internal disciplinary action was sufficient to rectify the deviant behaviour.42% of fraudsters were living beyond their means, and 26% of them were facing some financial difficulties.

Divisions more prone to fraud includeoperations, whichaccount for 15%of frauds, while 14% of frauds originate in the accounting department; executives and upper management accounts for 12% of frauds and sales for 11% of frauds.

16.3 FRAUD TRIANGLE

In the context of Forensic Auditing, it would be worthwhile to discuss the concept of the Fraud Triangle. This concept identifies three categories factors of risk that are present in the organisation.These factors can potentially lead to fraud, or when a fraud occurs, these factors are present in the organisation. These three factors are:

- Incentive and pressure – that is need
- Opportunity
- Rationalisation and attitude

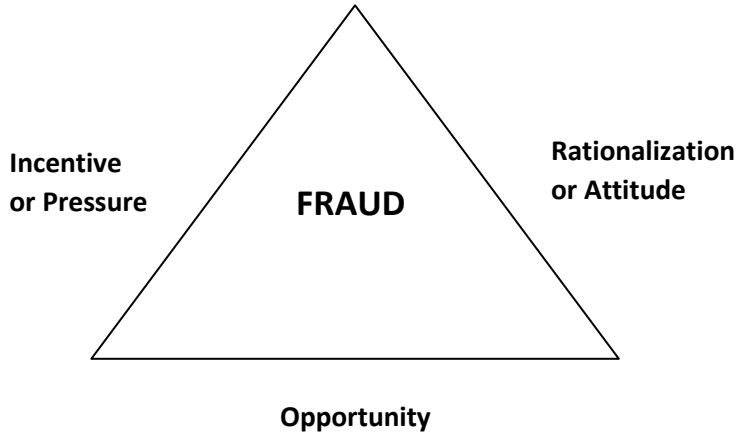


Figure 16.1 Fraud Triangle

These three factors are graphically represented in Figure 16.1 and are called Fraud Triangle. Now let us briefly discuss each of these factors.

1. **Incentive and Pressure**

   Management and employees are often put under pressure or offered incentives to achieve certain milestones, which can be financial, operational, related to sales, cast etc. These targets can be realistic or unrealistic. The problem arises when unrealistic targets are tied to remuneration and advancement opportunities. In order to achieve these unrealistic targets, the individuals, divisions, and company may have incentives to manipulate results or put pressure on others to do so. The company's pressure can also come from other stakeholder's viz. investors, banks, venture capitalists, government etc.

   The risk factors that may lead to fraud by companies are :

   - Situations that may threaten the financial stability or profitability of the company
   - Pressure on management to meet the expectation of other stakeholders especially that of investors and financial institutions.
   - Threat to the personal wealth of top management and promoters as a result of the performance .
   - Pressure on divisional managers by senior managers or Board of directors.
   - Effort to maintain existing debt rating or move to higher debt rating order to raise more finance.
   - Inability to meet debt covenants or fulfil conditions in merger or acquisition agreements.

Incentives and pressure can come in a variety of ways. Seen in the context of variable pay structure where a large portion of remuneration is based on achievement of performance targets, there will be an incentive for employees and senior managers to mistake achievements if the target performance is not achieved. Another source of pressure is the practice of awarding stock options. The value of stock options is derived from stock prices, which are partly derived from company's performance. In order to protect the value of stock options awarded, employees have an incentive to paint a rosy picture of the company, while the reality lies somewhere else.

With reference to the risk of material misstatement due to misappropriation of assets, the risk factors are

- Personal financial problems, greed, dishonesty, no fear of being caught or punished may lead employees to commit fraud.
- Adverse relationships with senior employees, dissatisfaction with organisationor organisationalpolicies, or a revengeful attitude might create a feeling of resentment and disloyalty, which may lead to fraudulent activities.

Determining the presence and degree of these pressures or incentives and evaluating the risk that these variables possess in perpetuating fraud, are the job of forensic auditors. Forensic accounting is used to quantify the losses due to fraud and trace the path through which fraud has been perpetuated.

2. **Opportunity**

It is generally assumed that people are honest, but circumstances may exist or be created that may push employees or management to commit fraud. An opportunity must not exist to commit fraud, and these opportunities may come in the form of ineffective internal control, lack of supervision, non-segregation of duties etc. Sometimes the organisationalstructure itself provides opportunity for fraud due to the nature, size and structure of the business. By their inherent nature,some transactions are more prone to falsification or manipulation as compared to other transactions, as do certain kinds of balances or accounts. Similarly, certain types of assets are more prone to misappropriation.

Various risk factors that are indicative of opportunities that could lead to fraud are:

- Nature of industry in which company operates
- Nature of business transactions and the manner in which they are recorded
- Degree of Dominance Company enjoys over supplier and customers. A high degree of dominance may create the opportunity for inappropriate or non-arm's length transaction
- Degree of subjectivity involved, the higher the subjectivity involved greater the opportunity for deliberate manipulation

- The level of opportunity will also depend on the extent of supervision of senior management by the audit committee, non-executive and independent directors and Board of directors
- The complexity of the organisational structure and the stability of the company or group to which the company belongs
- The overall control environment, including the effectiveness of internal controls and information technology infrastructure

3. **Rationalisation and Attitude**

The propensity to commit fraud by individuals is a function of ethical values and personal circumstances. The external environment also plays a role in shaping attitude, especially during hard times. Management's attitude towards fraud tolerance also shapes individual attitudes towards fraud. Rationalisation and attitude are intangible factors and, by nature, are difficult to observe and ascertain. Rationalisation and attitude is a product of the culture of an organisation and the psychology of those who work in it. Risk factors in this category are:

- Lack of clarity about corporate ethical values
- Fraud risk is taken lightly, and occurrence dealt ineffectively by management
- Budgeting and forecasting with large variance
- Management justifies inappropriate accounting and disclosure policies
- Non-cordial relationship with auditors

Most of the frauds begin on a smaller scale and grow in proportion over time. The typical rationalisationarguments advanced by fraud perpetrators are:

- It is just temporary, and the manipulated entry would be reversed in the next quarter there would be no material impact on the yearly results
- Management is indifferent towards frauds, and it does not seriously monitor internal controls, nor it is proactive in correcting known lacunas in internal controls
- Management is hand in glove and expects & rewards this kind of behaviour
- I deserve a better position and remuneration than offered by the company

The forensic audit shall try to find out whether such biases exist, and if such biases exist, then the company is a fit case for the occurrence of potential frauds

Before we move further, let us briefly discuss the major corporate frauds of the last two decades, in India and around the world. We first start with

corporate frauds in India and later on, move to international corporate frauds.

16.4 MAJOR CORPORATE FRAUDS

i) **Satyam computer** was one of the leading Information Technology companies of India. The promoters of the company devised ingenious ways to defraud the company and siphon off a large amount of money to the tune of 1 billion dollars. The modus operandi was to issue dummy bills for services not actually rendered to foreign clients. The take proceeds were shown in bank accounts opened in various countries, and many of these bank accounts were either nonexistent, or the balances shown in them were highly inflated. In a nutshell, this fraud is comprised of two parts. One is showing inflated revenue, and the second is showing inflated cash balances with the banks.

ii) **Kingfisher Airlines:** Kingfisher airlines, after its establishment, developed as one of the finest airlines in the private sector in India, garnering the second highest market share after Jet Airways.

The fall of the airlines started with the company borrowing huge funds from banks and related parties. The collateral for this borrowing was kingfisher Brand, an intangible asset. In India's financial history, it was probably the first time when banks had considered an intangible asset as collateral. When the promoters failed to pay back the principal amount and interest thereon, the brand value of Kingfisher took a nosedive and was virtually not of any value. The banks were saddled with NPA's of more than Rs. 9000 crores.

iii) **Jet Airways** had the largest market share among the Indian airline operators with best in class services. However, its financial practices were questionable, which included

- Overstating commissions paid to a related party based in Dubai, resulting in an overstatement of expenses and underreporting of profits
- diversion of funds by giving loans of around Rs. 3353 crores
- accounting of fake invoices

All this led to default in payment to lenders, vendors, employees, airport authority of India and lessors of aircraft. The total liabilities on which it defaulted was Rs. 25,000 crores, including Rs. 8500 crores to lenders.

IV) **Bhushan Steel** was a profitable company with modern large scale plants, but the promoters indulged in multiple fraudulent practices which were

- Transfer of borrowed funds to various related parties by way of loans and advances
- Accounting for capital expenses that were never incurred and misappropriation of these funds

- The fraud amounted to Rs. 50,000 crores, and investigation agencies have been able to establish that an amount of Rs. 2348 crores was diverted to more than 200 shell companies.

V) **PNB Fraud**

Two diamond traders defrauded the PNB to the tune of Rs. 16,000 crores. Both of them imported rough diamonds and exported polished diamonds. Their modus operandi was to open LCs of a large amount without any underlying transaction. This fraudulent practice did not come to light as these LCs were not recorded in the RTGS system of the bank and thus evaded the reconciliation process of matching LCs with the actual transaction.

VI) **ILFS**

This fraud was the largest corporate fraud in India and had the potential to destabilise the Indian Financial System. It was the major vehicle for infrastructure development and finance.

At the time the fraud was uncovered ILFS had a debt exposure of Rs. 91,000 crores, including Rs. 20,000 invested as debt by PF and Pension funds. The modus operands used by the top management to perpetrate fraud consisted of many malpractices which were

- Diversion of funds to related entities of some members of top management
- Lending to non-creditworthy entities for consideration
- Ever greening of loan by routing funds from one group company to another through or unrelated entity.
- Over invoicing of projects by vendors, accounting for fake expenses, and the difference routed back to related entities of top management.
- Overstatement of profits by non-provisioning for loans, and inappropriate recognition of project revenues.
- Large number of subsidiaries and group companies numbering 346, which were used to route fraudulent transactions
- Non disclosure of group companies as related entity and non disclosure of some of subsidiaries, associated and joint ventures.

ILFS was enjoying the highest credit rating, which enabled it to issue a large amount of bonds to garner funds.

Apart from these corporate frauds, there were a number of other corporate frauds in the last decade by companies like DHFL, PMC Bank, Yes Bank, Cafe Coffee day, Spot Exchange of India, Ranbaxy, Kwality products, Amrapali, CG Consumers and Coxs& Kings. In all the above cases, the mechanisms of committing fraud were more or less identical.

Now let us briefly discuss a few of the international corporate frauds.

Waste Management Inc: a publicly traded US waste management company, reported over $ 1.7 billion in fake earnings.

Enron Corporation Scandal (2001): Enron US energy, commodities and service company had been using accounting loopholes to under report billions of dollars of bad debts and simultaneously inflating its earnings. The uncovering of this scandal resulted in shareholders losing $74 billion as share price plunged from $90 to $1 in one year.

World com (2002): an American telecommunication company had inflated its assets by $ 11 billion. The modus operandi was to under report line costs and capitalisingon these costs, instead of treating them as an expense. This fraud was uncovered by the company's internal audit department when it found out that almost $3.8 billion were diverted to unauthorisedaccounts. This fraud led to CEO being sentenced to 25 years in prison, loss of 30,000 jobs and $ 180 billion losses to investors.

16.5 APPLICATION OF FORENSIC ACCOUNTING:

Fraud detection and prevention is one of the principal areas in which we find the application of forensic accounting, but the scope of forensic accounting has increased in recent years. Some of the specific practice areas of application for forensic accounting are:

1. **Bankruptcy, Insolvency and Reorganisation**:

   The services of the forensic accountant can be availed by debtors, individuals or organisationscontemplating bankruptcy or already in bankruptcy and creditors. In bankruptcy cases, forensic auditors mainly perform business valuations to resolve bankruptcy filing. They often work toward corroborating and supporting both the disclosure and the claims. At the operational level they assist the trustee in managing the financial affairs, identifying pre-bankruptcy transactions, searching for hidden assets and recovering hidden funds and assets. Creditors also used their services for the same purpose mentioned above to increase the quantum of recovery.

2. **Computer Forensic Analysis:**

   Nowadays, most of the transactions are done electronically, and information regarding these can be found in files stored on location beyond the computer infrastructure of the parties involved in the transaction. The role of a forensic accountant is to recover and preserve this information for evidence purposes and litigation support. The competency of forensic accounting lies in knowing the type of electronic information that may exist, the form and format in which it is stored, the location of the information and the means to access the information.

3. **Economic Damage Calculations:**

   When two or more parties are involved in a transaction and action or inaction of one of the parties causes loss or injury to the other party, damages arise. Damages can be in the form of last earnings, lost profit or physical loss of property. Forensic accountants are often for damage

calculation, as well as for reviewing and refuting damage calculation by the opposing party. They also help in reaching a negotiated settlement of damages instead of going for litigation.

4. **Family Law:** Forensic accountants can have several roles in cases involving inheritance, will, Hindu undivided family (HUF) and marital dissolution (divorce and past divorce). In cases involving inheritance, will and Hindu undivided family, the documentation is often not adequate, and claims of individuals are often entangled with the claims of other individuals. Forensic accountants are often called to uncover hidden or undisclosed sources of income or assets, entangle the claims and reach fair valuation of assets to satisfy the claims of parties involved.

   In case of marital dissolution, for the purpose of determining alimony and child support, the earnings and expenses of each party has to be evaluated along with the earning potential. This can be effectively done by the forensic accountant.

5. **Financial Statement Misrepresentation:** The statutory auditors examine the financial statements and determine whether the financial statements properly report the balances, results and required disclosures. If the internal/statutory auditors flag any issue such as overstatement, understatement, omission and improper accounting treatment,then the forensic accountant role comes into play. They calculate the effect such identified issues would have on financial statements and determine the persons and process for these improprieties. They will also uncover if there was any underlying scheme or motive for misrepresentation.

6. **Fraud Prevention, Detection and Response:** This area has the most prominent role for forensic accountants. They design the accounting and control systems to prevent frauds, investigate frauds that have occurred, and redesign the system with better controls and procedures to prevent reoccurrence of frauds in the same form or potentially any other form.

Their services can be used to proactively evaluate internal control systems, financial policies and accounting procedures.

Business Valuations: Services of forensic accountants are used to conduct business valuation in a number of contents. The valuation may be required when a partnership firm is dissolved, or one partner is leaving/buying the interest of the other partners. In case of bankruptcy, the creditors have to be paid out of the remaining assets of the bankrupt firm. The remaining assets are valued by the forensic accountant. Similarly, in case of NPA's, the banks have to have a haircut viz. receive Rs. 10,20,30,40,50 or 60 instead of Rs. 100, which was originally due from the borrower. To decide the quantum of haircut, the expertise of a forensic accountant can be used. Nowadays,start-up companies are becoming a part of our economic ecosystem. A venture capitalist invests in these start-up companies based on valuation derived in part by forensic accountants.

16.6 TYPES OF FRAUDS

The origin of the fraud can be either internal or external. Frauds perpetrated by employees and owners are referred to as internal frauds, whereas frauds committed by outsiders viz who are not employees or owners is referred to as external frauds. The asset misappropriation chart listing most of the probable frauds is often referred to as fraud tree, the reason being the numerous ways in which frauds can take place represented by branches of trees. As per the fraud tree classification, asset misappropriation is subdivided into cash misappropriation and inventory and all other asset misappropriation.

The Fraud Tree

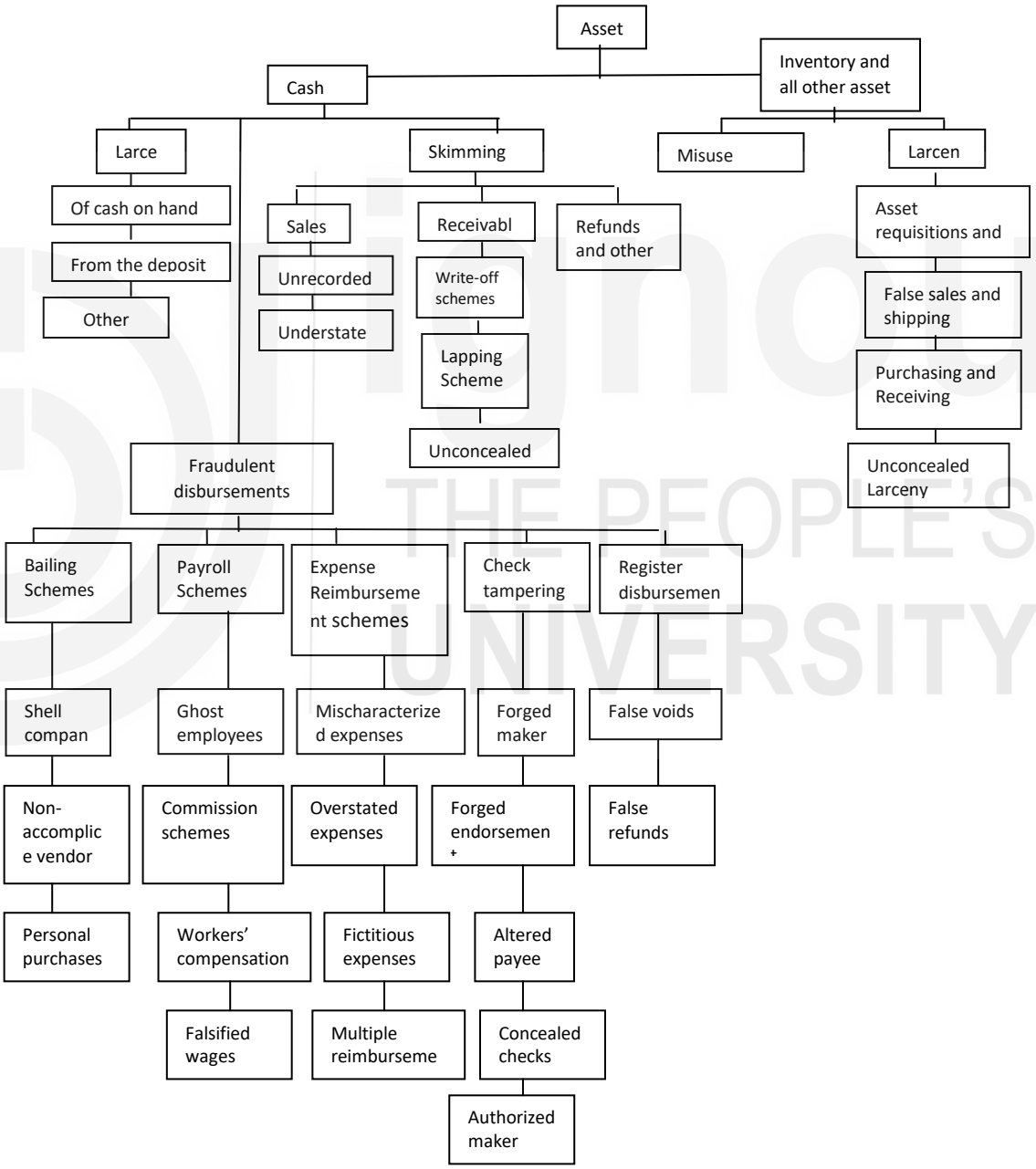


Figure 16.2 Fraud Tree

Cash misappropriation is the most common and consist of many ways.Fraud involves an intentional deception by the individual's associations with the business in their capacity as employees, owners, vendors, customers and anyone else related to the business or unrelated to the business, in order to in appropriation to obtain money or services or any asset leading to financial loss to the business. Some of the frauds are standalone frauds committed only once, whereas some are perpetrated over a period of time. Frauds can be committed by an individual alone or in collusion with other individuals or entities. An extensive classification of frauds is done by the Institute of fraud examiners and is popularly known as the fraud tree.This fraud tree is depicted in figure 16.2

16.7 FRAUD ORIGIN AND ACCOUNTING CYCLES

In order to understand the genesis of fraud and how it is perpetuated, let us briefly discuss the five accounting cycles which are common to the manufacturing and trading business. These cycles are

1. Sales and Collections/ Receipt Cycle
2. Purchase and Payments (Disbursement)
3. Personnel and Payroll
4. Inventory and warehousing
5. Monthly Reconciliations and Reporting

1. Sales and Collections /Receipt cycle: Sales and collections cycle consists of making sales and collection of sales proceeds either immediately in case of cash sales or after a period of sometime depending upon the credit policy of the firm. This cycle is the most cash incentive cycle out of the five cycles and most prone to frauds as the employees may have access to and opportunity to divert customer payments in the absence of proper internal control.

   In the fraud tree classification, the frauds which can play in this cycle are Larceny, skimming, check tampering & register disbursement. In addition, frauds can occur through front end frauds also in this cycle. The common ways in which frauds occur in this cycle are

   Theft of cash on hand

   - Employee steals the cash out rightly
   - Employee uses the cash for his personal use for a period of time and replaces the same, at the time of reconciliation or make good the shortfall through a fictitious book entry

   Theft of cash Receipts

   Theft of cash receipts can be done by

   - Skimming
   - Larceny

Skimming is the process by which cash is removed from the business before a formal entry of the cash is made in the accounting records. This is an "off-book" scheme because the cash receipt is neither reported nor entered in books of accounts. The common skimming schemes are

- Sales scheme
  - Unrecorded sales
  - Understated sales
- Account Receivables scheme
  - Write off schemes
  - Lapping schemes
  - Unconcealed receivables
- Refund and other schemes

Under the skimming sales scheme, the sales are either unrecorded or understated. This is true for businesses where the primary mode of transaction is cash. Detection of theft of cash receipt schemes:

- analysecash receipts and their recording
- analysedeposit slip book
- analysesales account by an employee
- Analysethe gap between receipts from customers and the date the payments are posted on the customer's account.
- Review entries in the books regarding:

Credit to inventory account to conceal unrecorded or understated sales

Write off of inventory due to lost, stolen or obsolete product.

Write off of accounts receivable

- Analysethe relationship between sales and cost of sales, sales and sales return and allowances on sales.

2. Purchases and Payments (Disbursements) Cycle:

This cycle starts with purchasing of goods and services required by the organisationand ends with payments for these goods and services. Through this cycle,many can operate, resulting in fraud. An individual working with the purchasing department may perpetrate fraud by setting up a shell company to receive goods misdirected from the company by false invoices. In case of processing and approving duties are segregated, individuals can collude to perpetuated fraud? The procurement fraud is generally a collusive employee–vendor scheme.The employee will receive a part of gains accruing to the vendor by substituting products inferior to contract specification, billing for work not computed, shipping user quantities more than contracted or padding overhead expenses. Another common, scheme is to raise an overvalued invoice by the vendor and get it processed by the employee.

3. Personnel and Payroll Cycle:

This cycle starts with the hiring of the employee, maintaining and terminating employees. The main activities involved in the personnel and payroll cycle is determining salary and benefit amount, monitoring and approving employee's expenses and reimbursement and all other aspects relating to compensation of employees. The typical fraud schemes perpetrated in this cycle are:

- Payroll schemes
- Ghost employees
- Commission schemes
- Workers compensation fraud
- Falsified wages scheme
- Expense Reimbursement Scheme

Ghost employees fraud occurs when nonexistent employees or employees who have left the organisation are added to the payrolls, and their wages are received by another employee or group of employees who have colluded to perpetrate the fraud. This kind of fraud is most likely to occur in large organisations, with many employees coupled with weak internal controls. This fraud may also occur at remote worksites like mines, dams, railways etc.

Commission schemes are most likely committed by sales employees or employees whose remuneration is dependent on achieving certain targets. To perpetuate this kind of fraud, the employee either manipulates the target to be achieved or gives an impression of the target being achieved. For example, to achieve sales target to receive a commission, sales personnel may execute a bulk of sales on a credit basis which later turns into either bad debts or sales returns. Another variant of this scheme is the dumping of products in another sales territory for which someone else is responsible. Dumping is usually executed by offering huge discounts, another form of revenue loss.

Workers compensation fraud is committed by falsifying injuries and attributing them to work conditions, in order to extract insurance claims/compensation from insurance companies or employers.

Falsified wages scheme involve employees claiming remunerations for hours not worked and includes falsifying of timesheets and timecards.

An expense reimbursement scheme involves claiming false expenses. These kinds of schemes are of four types, viz. mischaracterisedexpenses, overstated expenses, fictitious expenses and multiple expenses. Out of pocket expenses related to the business are reimbursable, like travel, lodging and meals. These expenses, when not done for business purpose but still claimed as business expenses, are referred to as mischaracterised expenses. In an overstated expense reimbursement scheme, inflated bills are submitted by modifying expense receipts. Other methods include over purchasing and benefiting from refunds and discounts.

Sometimes the employee, in whose name expenses are to be reimbursed, may not be involved. However, the person processing the reimbursement may insert a false claim and process it and pay the actual amount requested to the employee and pocket the extra expense, which was inserted fraudulently. In a fictitious reimbursement scheme, an employee request reimbursement for wholly fictitious expense. In case of multiple reimbursements, employee requests reimbursement for the same expense multiple times by submitting claims to different authorities.

16.8 FRAUDULENT FINANCIAL REPORTING SCHEMES

Over reporting and under-reporting of revenues are the two methods used by the business depending upon the motivation of the people running the business. Under-reporting is generally resorted by sole proprietorship firms, partnership firms and Private Limited Companies with a motive to evade taxes like GST (previously this constituted of excise duty, sales tax, Value added tax and various other taxes) and Income tax. Overstatement of revenues may not strictly be treated as fraud, but it does distort a company's true financial performance in order to exhibit the desired result.Principles governing recording of revenues are not rigid and flexibility is always allowed but when this flexibility is exploited to distort the true picture of the company, revenue reporting abuses occur.

Financial statement frauds would improperly reflect one or more of the following basic accounting elements viz. assets, liabilities, equity, income and expense. Since modern day accounting is based on double entry bookkeeping, misstatement would result in two or more of these basic elements being misstated.

The following methods are used for overstating revenues

- Accelerating shipments
- Keeping books open in order to record sales often made at the end of the accounting period
- recognisingtransactions as sales which are not yet sales examples include consignment sales not yet sold to the end user, sales with a special condition, certain file and hold transactions, products shipped for trial or evaluation purpose
- Swaps or round trip trades and related party transactions
- Non-adjustment in gross sales by understatement of returns, discounts and markdowns
- Fictitious sales

Revenue Recognition Detection Techniques

Variety of techniques can be used to detect anomalies in the revenue recognition process ranging from inquiry and analytical tests. Some of these techniques are:

- Seek information from the marketing, sales and finance department,analysehow and when revenue targets were achieved and critically analysethe sales that occurred near the end of the accounting period.
- Through cut off testing, determine whether sales were accelerated or decelerated. This can be found out by

- Examining purchase orders, invoices and shipping documents
- Comparing the billed volumes with shipping volumes
- analysingending inventory
- Examining documents for pre and post dating
- Examining logistics and warehousing documents looking for large shipments near the period end, significant returns and bill and hold transactions.

- analyselarge transactions
- Near the end of an accounting period
- With a new customer
- With a related party
- analyse new customers making large purchases
- Confirms physical location of purchasing entity
- Review transactions after the closure of the accounting period for evidence of invoicing and payment or cancellation or return of goods.
- Seek confirmation from customers regarding volumes, amount, dates and side agreements and pay.

16.9 IMPROPER REVENUE RECOGNITIONS

Side Agreements: Sales is often made on pre-agreed terms and conditions and formalisedin terms of the agreement. Managers and executives may modify, revoke or amend the terms of the sale, without proper authorisationoutside the recognisedsales process or reporting channels. The common modifications include purchase return rights, extended credit period, refund or exchange on return. These modifications may impact revenue recognitions, viz. there is a probability of advance revenue recognitions if there is purchase return.

Roundtrip Transactions: Roundtrip transactions are the transactions between two or more economic entities, and these transactions do not yield and business or economic benefit for the entities involved. The underlying motivation for entering into these transactions is to inflate the revenues or create an appearance of strong sales growth.

Roundtrip transactions may include two-way sales between two companies for the same amount within a short period of time, or it may involve a loan, advance or investment in one entity so that the other entity can purchase goods from the company making loan or investment.

Bill and Hold: Under this scheme, the sale is recorded in books, but delivery and transfer of ownership have not yet occurred as on that date.

Altering Shipping Documentation: Through a false shipping document, a company may falsely record sales or by altering genuine shipping document (commonly altering dates or terms of payment), a company can inflate revenue in a specific accounting period instead of the subsequent accounting period.

Agreement to 'Sell Through' Product - In this scheme, sale agreements include contingent terms which are based on the future performance of the buyer (commonly distributors and resellers). To understand this, suppose company A sells to distributors B & C goods with the condition that B & C will make payment only when they have further sold the goods. Now company A books the sale the moment goods are transferred to B & C. This will increase the sales figures through no actual sales have been made to customer or end user. These agreements are similar to consignment sales. A sale should not be recorded until the goods are sold to a third party with no additional contingent sales term.

Upfront fees – Some sale transaction requires the customer to pay upfront consideration for services that would be provided over a period of time spanning over several accounting periods. In order to manipulate earnings, companies recognisethese fees as revenue soon as the transactions are entered into and sometimes even indulge in falsification or modification of accounting records. A prudent approach, in this case, would be to recogniseonly the revenue for the services provided in the specific accounting period.

Holding, Accounting periods Open: Accounting periods are well defined under the various acts, but the companies in order to show better results, keep the books open, to include transactions that happen after the accounting period. This scheme commonly involves recording sales, cash receipts etc. That occurs after the end of the reporting period. This scheme is often operated either by falsification or modification of accounting documents like the date on shipping documents, purchase orders, bank statements, cash reconciliations, cash receipts, journals etc.

Non-recording of sales provision or allowances: Some sales transactions include a provision of return of purchased goods by the purchaser companies shall create provisions for these kinds of transactions to reduce gross sales to account for future sales return. By failing to create provision for sales return, companies can overstate revenues. This scheme is operated by falsification or modification of documents on which accounting entries are made.

- Inventory Schemes :

Inflating/deflating the value of inventory - Inventory valuation can be manipulated in a number of ways, depending on the motive involved. If tax evasion avoidance is the motive, inventories would be undervalued. Inventories would be overvalued to show inventory gains, and if inventories are kept as collateral for bank loans, the motive would be to avail a higher

loan amount. The common ways in which inventory value is manipulated are moving inventories between locations to fictitiously inflate/deflate inventory quantities, postponing/ propounding, and under/over reporting of write-offs and reserves for obsolesce, manipulating unit valuation and improper inventory capitalisation.

- Of site or Fictitious Inventory:

Companies may create /destroy inventory by falsifying journal entries, receiving and shipping reports, purchase orders, sales invoices. Companies indulge in these schemes to decrease/increase the cost of sales as a percentage of sales.

16.10 OTHER FINANCIAL REPORTING SCHEMES

Fraudulent Audit Confirmation: Audit confirmation gives assurance to the stakeholder regarding the authenticity of financial statements. However, a large part of the audit confirmation is based on the records and information provided by the company even in case of sales, cash, accounts receivables, debt and liabilities where third party confirmation is obtained by the auditor, is not an assurance that factual information will be provided by third parties as they may act in collusion with the company.

Refreshed Receivables: As a prudent practice, companies need to make provisions for bad and doubtful receivables (debts owed to them), but in order to avoid making provisions and write-offs which decreases profits, companies refresh the ageing (old) receivables and improperly represent them as receivables which are current in natures. This scheme operates by crediting the receivable account of the customer and allowed to repurchase goods on credit. In this scheme, no physical transfer of goods takes place. Other methods used in the schemes are modification of dates of invoices in the account receivable system, which results in a restart of the ageing process in receivables.

Promotional Allowance Manipulations: Sellers often provide rebates, incentives or other credit to customers to purchase products in volume. These incentives can be in the form of volume discounts, reimbursement for special handling, co-advertising reimbursement, slotting fuss etc.

These incentives are based on sales going to be achieved in future, and to decide on the quantum of these incentives, certain estimates are to be made. These estimates can be manipulated or biased. When the company operates a promotional allowance scheme, there are chances of early recognitions of revenue or taking into consideration the cost of rebates or credits to be given to the buyer resulting in inflated sales figures.

Off-Balance sheet entities and Liabilities: When companies borrow funds through off balance sheet entities or special purpose entities, so that these borrowed funds are not reflected on the company's balance sheet. However, some schemes are designed in a way to conceal debt and misstate liabilities

on the balance sheet. Concealment of debt also hasan impact on the income statement as the concealed debt has to be serviced. Since liability is not on the balance sheet, therefore, on interest is also charged to the income statement thereby inflating the profits.

Improper Asset Valuation capitalisationof Expenses: Financial statements are supposed to provide a true and fair picture of the state of affairs of the company. Improper treatment of expenses can lead to an increase in assets if the revenue expenses are treated as capital expenses leading to inflated profits. Apart from this,ghost debtor's scheme is also used to inflate the asset side and simultaneously siphon off the money from the company.

Phoney investment deals: These schemes are designed to inflate assets and earnings. They operate by deliberately overstating existing investments or creating fictitious investment accounts. Investments can also be intentionally misclassified, leading to improper recognition of gains or failure to recogniselosses. These schemes are also used to hide or defer losses arising from sales or permanent write down from impairments.

Adding back outstanding cheque to cash: In order to inflate the ending cash balance of an accounting period, outstanding cheques may be added to cash balances or the cheques issued but not mailed or presented to the bank by the counterparty can also be added to the cash balance & Intercompany manipulations unjustified consolidation entries: Nowadays, most of the companies operate through subsidiaries and other companies in which they have controlling stakes. In preparation of final accounts of holding company account of subsidiaries and subsidiary companies, the accounts have to be consolidated during the financial closing. Sometimes unjustified or fictitious consolidation entries are passed with limited accounting documentation or explanation. These schemes are operated to over /under state various balances or legitimisefictitious transactions.

Related Parties transactions and Disclosure Frauds: Related parties transactions are to be disclosed in a fair and transparent manner. This includes when related party transactions are done with an attempt to create fictitious transactions with the intent to increase reported revenues or assets.

16.11 IT TOOLS FOR FRAUD DETECTION

Now a day's most of the financial transactions are done through electronic devices, and authorisationfor these transactions is also more or less in electronic form. "Forensic computing is the process of identifying, preserving, analysingand presenting digital evidence in a manner that is legally acceptable in the court of law". For this purpose, many IT tools and softwares are used. Some of these softwares commonly used are as follows:

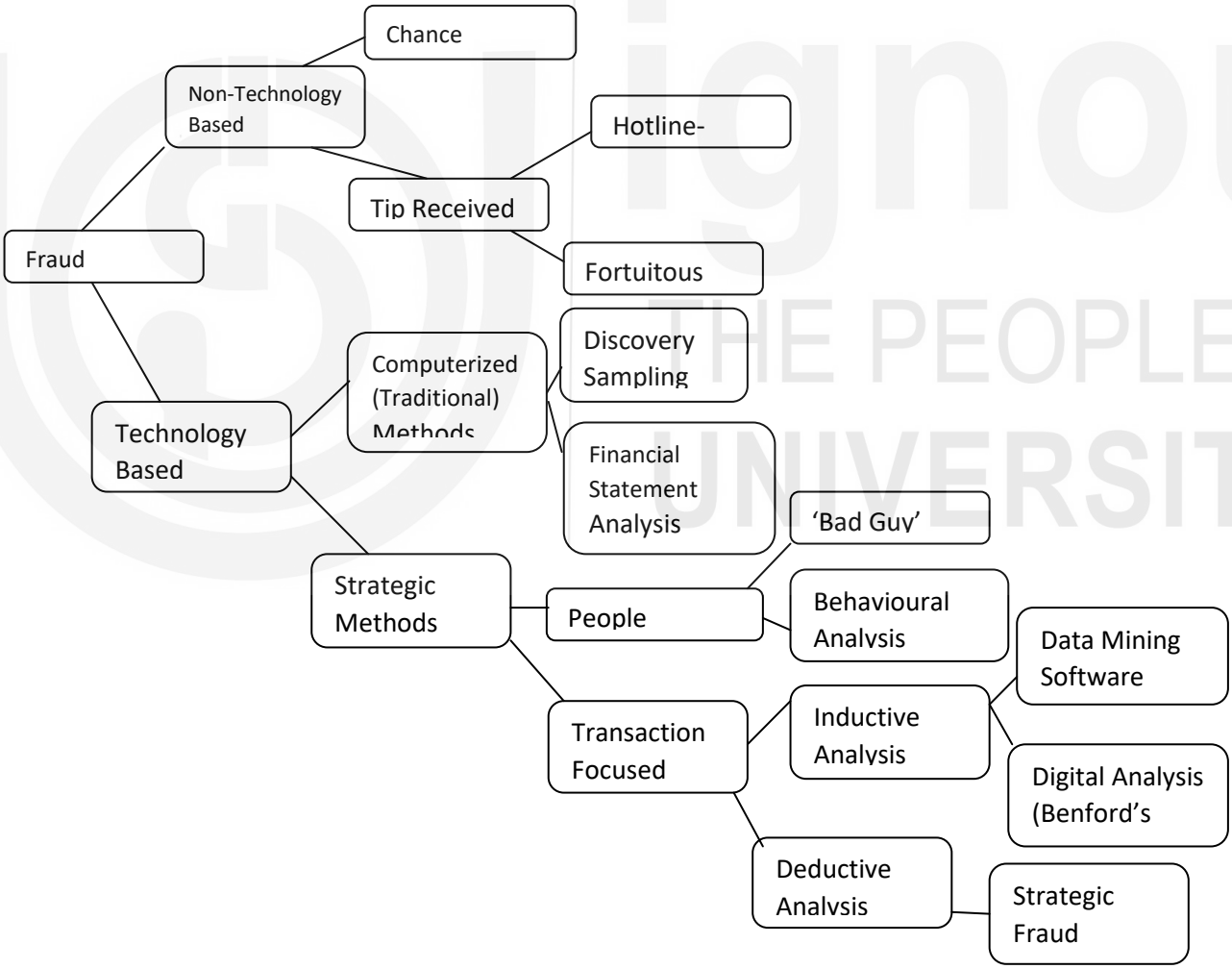
Helix is software based on Knoppix (a variant of Linux) which is used to acquire forensically sound images of hard drives and hard drive partitions of systems.

ACL Desktop, also known as Audit Command Language, is a tool to read and analysevarious types of tiles scattered across multiple databases on different platforms. A unique feature of ACL is its ability to maintain data integrity as its method of accessing the data is read-only access. Due to this feature, source data is never changed, altered or deleted.

Ultra Block is forensic write blocker hardware that prevents modification in data accessed for forensic accounting. Since the authenticity of data is very important in case of data being submitted to a court of law as evidence use of ultra block hardware prevents the data from being modified or altered when the data is accessed and analysed.

Password kit forensic is a tool to find all the password protected items on a computer system and gain access to these items using decryption and password recovery algorithms.

Categorisation of Fraud Detection Methods



16.12 METHODS O F FRAUD DETECTION

There are two main methods used to detect fraud which is supervised and unsupervised.

1. Supervised Method: In this method, fraud detection is based on the dynamics of the previous frauds committed. This method makes use of prior data and information. The prior data and information, also called labelled information, consists of both genuine and fraudulent transactions. Based on prior data, models are constructed and trained to discriminate between genuine and fraudulent transactions. The basic assumption of these models is that the pattern of past frauds will persist for the present and future also.

   Since this method is based on the fraud structure of the past events, this method may not work due to over fitting to the training dataset or unknown fraud types. The robustness of these methods also comes into question during extension, re-utilisationand adaptation. For this system to be dynamically extendable and adjustable new information must be fed into the model and retrained. Another drawback of this method is the uneven class size of legitimate and fraudulent transactions. The legitimate transactions outnumber the fraudulent transaction, and according to some studies, about 0.08 percent of observed transactions are fraudulent. Now, if this method classifies all fraudulent transactions as genuine, the error rate is going to be minuscule which can be misleading.

2. Unsupervised Methods: These methods are based on the identification of outliers which are detected through data mining techniques. Change in behaviour and frequency of transaction is detected by suspicion scoring systems which are based on the if-then type of outlier rules. These rules are based on experiential knowledge. When the pattern in data does not conform to the expected pattern or some anomalous data pattern is detected, it is an indication for further probe. The criteria to detect outliers are not fixed but may change for various reasons such as cost and efficiency. This method is similar to the human's cognitive decision process, enabling the auditor's to understand the process and adjust the model if necessary.

   The results generated by the unsupervised method are not direct evidence of any fraud, but they merely tell that the flagged transactions do not fit into the data pattern, which may be either due to error or fraud.

16.13 FORENSIC AUDIT TECHNIQUES:

A normal financial audit confirms that the financial statements gave a true and fair picture of the state of affairs of the company and complied with all cable laws and accounting policies. During the course of the audit, auditors may come across transactions that are not normal in nature or are not backed with sufficient documentary evidence. To investigate these anomalies, forensic audit is done. Some of the techniques involved in forensic auditing to examine the frauds are:

1. Testing Internal Controls: Most organisations have internal controls in place, but there are certain weak links that are exploited by the fraudsters to commit fraud. A good initial forensic auditing technique is to

understand and analyse the internal controls of an organisation and find possible ways to circumvent the controls. This will give a fair idea to the auditor of the possible path of the fraudster.

2. Trend Analysis: Most of the companies grow at a normal rate, and the various transactions required to accomplish the business task also exhibit a certain trend. Sudden spikes and troughs in the trend of these variables indicate something unusual and are worth investigating. During the forensic investigation, the auditor should review the organisation's historical norms and analyse the outlier events in the context of historical norms.

3. Digital Forensic Examination: Digital forensic examination is one of the most important techniques for fraud investigation as digital trails are difficult to cover up and manipulate. A close scrutiny of phone logs, official emails, accounting records and company databases will uncover many hidden facts. A digital forensic examination is quite a compelling job and may require the assistance of computer and database specialists to assist the accounting and financial auditor.

4. Face to Face Interview: It is always a good idea to understand organisational dynamics and the process dynamics before undertaking a forensic audit. Face to face interview with the executives and managers is an effective tool to accomplish this. The information provided by them can direct the audit in the right direction. Most of them would have information about the event and have a perspective without being directly connected to the event/ fraud.

5. Full Financial Audit: Before commencing forensic audit, it is important to conduct a full financial and accounting audit which involves bank statement reconciliations, scrutiny of vendor contracts and payment, verification of sales and purchase, review of tax returns and other filings with the public authorities. The findings of the financial audit give a lead to forensic auditors to identify suspicious transactions and trace them back to potential perpetrators.

6. Application of Benford's Law: Benford's law is a mathematical tool to determine whether the variable under study (suspicious transactions) is a case of unintentional error or fraud. The basic premise on which this law operates is that fabricated figures (an indicator of fraud) possess a different pattern from random figures which are generated from normal business transactions.

   Once a series of transactions is identified as suspected transactions, the left-most digit of the figure is extracted of all transactions of that particular variable and summarisedfor the entire population. Next, the observed count percentage of the left-most digit is calculated and then Benford's set is applied to carry out a parametric test known as the Z test, which is used to determine whether two population means are different when the variances are known, and the sample size is large. Here the two population sets are Benford's percentage numbers for the first digit and observed numbers for the first digit.

If the observed data confirms the percentage of Benford's law, it implies that the observed data is Benford set, and there is a 68% chance of no error or fraud. Similar sets had been developed by Benford for 2, 3 and last digit as well.

This method can be used for the analysis of credit card transactions, purchase orders, loan sanctioning authority to sanction loans below Rs. 5,00,000 and any amount above that has to be referred to the circle office. Looking just below the approval threshold provides a potential to discover loan fraud. If the loan fraud is being perpetuated, it would be interesting to observe first figure 4 and first two figures 49, and their repeated occurrence may signal potential fraud. Taking another example where any purchase above Rs. 35,000 would require a purchase order. Here too, looking at the first figure 3 and the second figure 4 can reveal any anomalies, manipulations or fraud involving this cut-off.

7. Theory of Relative Size Factor (RSF): The application of this theory can highlight unusual fluctuations in the data series under observation, and these unusual fluctuations than can be further analysed to determine whether unusual fluctuation is genuine error or fraud. RSF is the ratio of the largest number to the second largest number in the data series. In practice, there exist certain limits for each entity, such as vendors, customers and employees. These limits may be pre-defined based on historical data or may be derived from the available data. Based on these limits, stray cases that are way beyond the normal range shall be investigated further for the detection of anomalies or outliers. The values that fall outside the pre-defined range are suspected to be either fraud or error. These values need to be correlated with other variables to find the relationship and classify them as either error or fraud
8. Computer-Assisted Auditing Tools: These audit tools (softwares) are designed to access data of audit significance from client's information system without depending on the client's accounting personnel. Since these are automated tools, the chances of data manipulation are minimal until and unless the information system itself is needed with manipulated data. These tools are capable of :
    - Testing details of transactions and balances
    - Identifying inconsistencies or significant fluctuations
    - Testing general as well as application controls of computer systems(Data security and integrity)
    - Extracting sample data for audit verification
    - Re calculation of calculations done by clients computer
9. Data Analysis Ratios: Financial ratios indicate the financial health of a company similarly, data analysis ratios for key numeric fields provides an indication of the fraud health by analysing and identifying possible symptoms of fraud. Commonly used ratios are
    - The ratio of highest value to the lowest value
    - The ratio of the highest to the second highest value

- The ratio of the current year to the previous year.

The variables used in the ratio can be costs, production, the volume of sales, labour hours, expenses under various heads etc.

10. Beneish Ratios: These ratios are used to distinguish between fraudulent financial reports and non manipulated financial reports.The following ratios are used.

- Days' sales in receivable index

(Accounts receivable in time t/sales in time t)/ (Accounts receivable in time t-1/sales in time t-1)

In the case of manipulators, this index would be near 1.465, whereas in the case of non-manipulators, the mean index is going to be 1.031

- Gross Margin Index

(Gross margin in time t-1/Sales in time t-1)/(Gross margin in time t/Sales in time t)

In the case of manipulators, this index would be near 1.193, whereas in the case of non-manipulators, the mean index is going to be 1.014

- Asset quality index

{(current assets in time t +Net fixed assets in time t)/(total assets in time t)}/ {(current assets in time t-1 +Net fixed assets in time t-1)/(total assets in time t-1)}

In the case of manipulators, this index would be near 1.254, whereas in the case of non-manipulators, the mean index is going to be 1.039

- Sales Index

Sales in time t/ sales in time t-1

In the case of manipulators, this index would be near 1.607, whereas in the case of non-manipulators, the mean index is going to be 1.134

16.14 SUMMARY

The last few decades have seen frauds of severe magnitude resulting in loss of billions of dollars and loss of investors' confidence. The techniques used to get to the bottom of the fraud schemes, investigations and preparation of evidence suitable for a court of law are collectively referred to as forensic accounting. Forensic accounting is a multidisciplinary field requiring the application of skills for many fields like accountancy, computers and law. The fraud triangle specifies the conditions which if present, can lead to fraud. The applications of forensic accounting are wide-ranging and are just not confined to companies. Corporate frauds have been extensively classified, and this classification is popularly referred to as fraud tree.Apart from the frauds happening in the normal functioning of the business, fraudulent financial statements is also a major fraud.

16.15 SELF-ASSESSMENT QUESTIONS.

1. What is forensic accounting? Provide an overview of recent corporate frauds.
2. What do you understand by the fraud triangle?
3. In the context of Fraud Triangle explain the role of pressure and opportunity in perpetuating fraud.
4. Discuss the major corporate frauds of the last two decades.
5. Explain the application of forensic accounting.
6. What are the various types of frauds? How are they classified under fraud tree?
7. What kind of frauds can occur in the sales and receipt cycle?
8. Explain the potential of fraud occurrence in Personnel and Payroll cycle.
9. What do you understand by fraudulent financial reporting scheme?
10. What are the IT tools used for fraud detection?
11. Explain the various forensic audit techniques.

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